

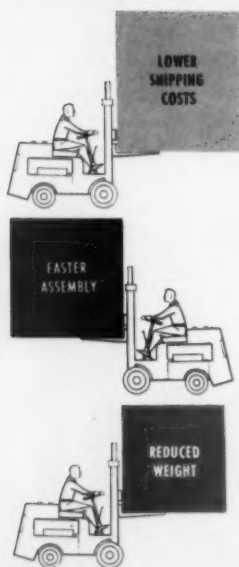
June • 1954

safe transit

FROM ASSEMBLY LINE TO FINAL CUSTOMER



No matter where they're bound
SHIP THEM WIREBOUND !
 and Stack 'em High As You Like



Modern handling methods call for quick and easy storage—in a minimum of space. The special Wirebound construction of strong steel wire and light, tough wood suits itself to modern methods of materials handling. You stack 'em fast, efficiently and high as you like. Shown above are some high-stacked Wirebound pallet boxes that are used for inter-plant shipments and parts storage. No other container is so perfectly suited to fork truck handling. They appeal to economy-minded management. We will be pleased to give you all details on versatile Wirebounds, regular or pallet boxes and crates.

MAIL THIS COUPON NOW!



WIREBOUND BOX MANUFACTURERS ASSOCIATION

Room 1154, 327 South LaSalle Street, Chicago, Illinois

- ☐ Have a sales engineer give me the whole story
☐ Send me a copy of "What to Expect from Wirebounds"

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Firm Name _____

Address _____

City, Zone and State _____

safe transit

A monthly trade publication section devoted to improved packaging and shipping and materials handling practices in the home appliance and metal products manufacturing field.

Plant experience information for all executives and plant men interested in the problem of packaging and shipping improvement and loss prevention.

Complete information on the National Safe Transit pre-shipment testing program for packaged finished products, and detailed progress reports of divisions and sub-committees of the National Safe Transit Committee.

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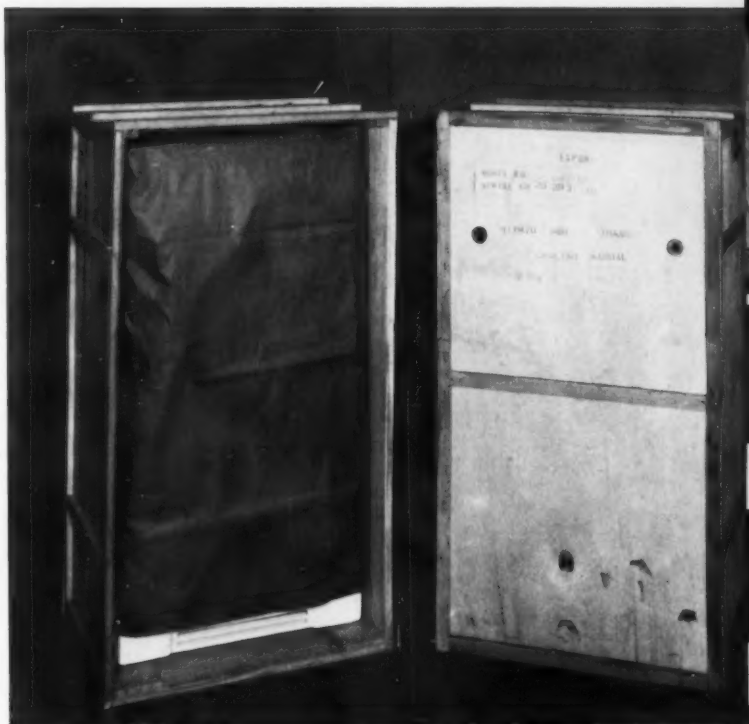
**PACKAGING UNASSEMBLED
REFRIGERATORS FOR
EXPORT AT HARVESTER ST-4**

**THERE'S PROGRESS ON
THE "TWO-WAY STREET" . . . ST-8**

**ANNOUNCE JUDGES FOR
INDUSTRIAL PACKAGING,
HANDLING COMPETITION . . ST-13**

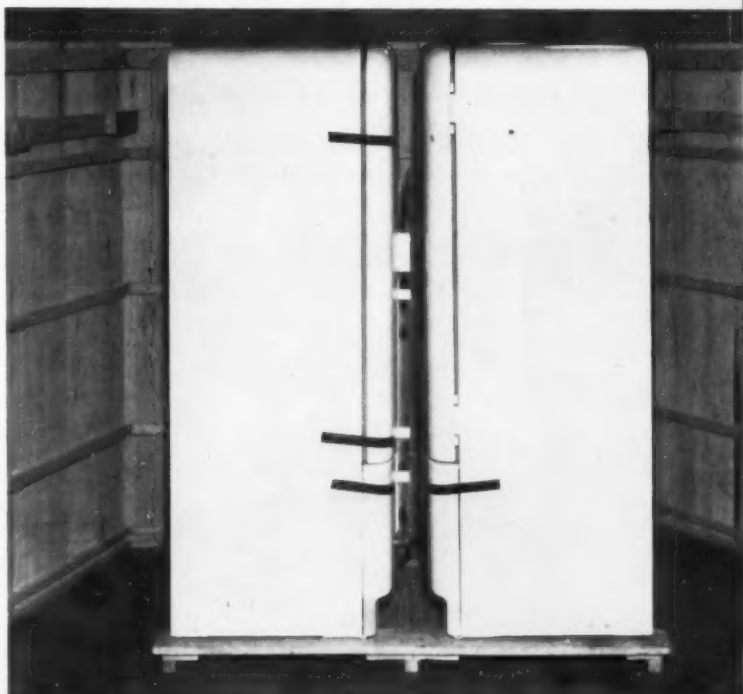
**LISTING OF PRIMARY
PRODUCTS COVERED BY
SAFE TRANSIT PROGRAM . . ST-14**

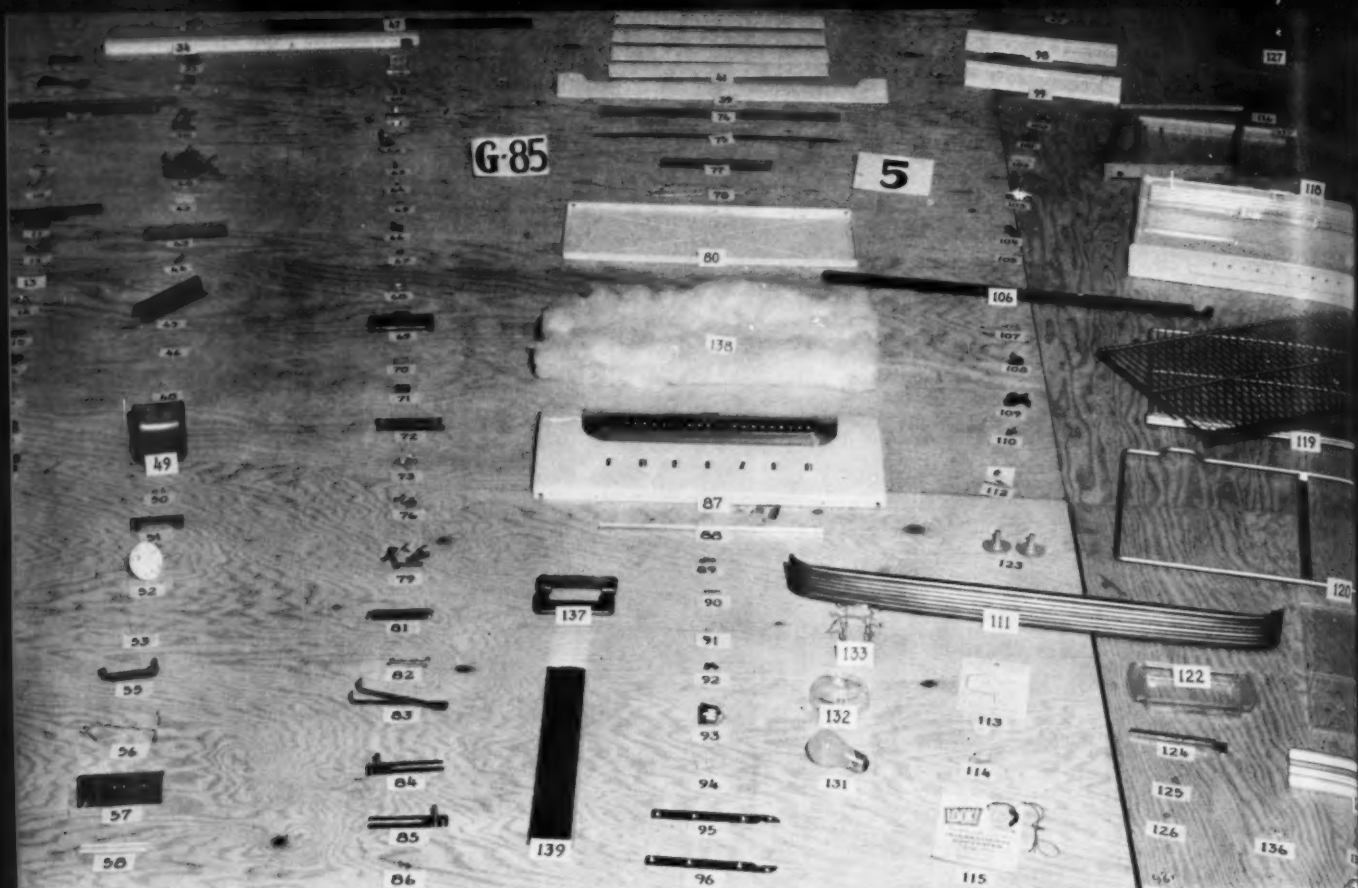
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DANA CHASE PUBLICATIONS
360 N. Michigan Ave.
Chicago 1, Illinois
PRINTED IN U.S.A.



International Harvester—packages assembled refrigerators for export in plywood containers—and uses a protective paper bag as added protection for the appliance finish. For a report on how I-H packages un-assembled refrigerator for export, see Page ST-4.

A twin-pack—for shipping two refrigerators in one wrap-around container—has been devised by the I-H Manufacturing Research Department. Although termed experimental only, it was indicated that the twin-pack method could be used for safe export shipment.





Some of the 275 individual parts for each of two refrigerators packed in unit export box.

Packaging unassembled refrigerators for export at International Harvester

evolve new packing method which includes use of "vapor corrosion inhibitor"



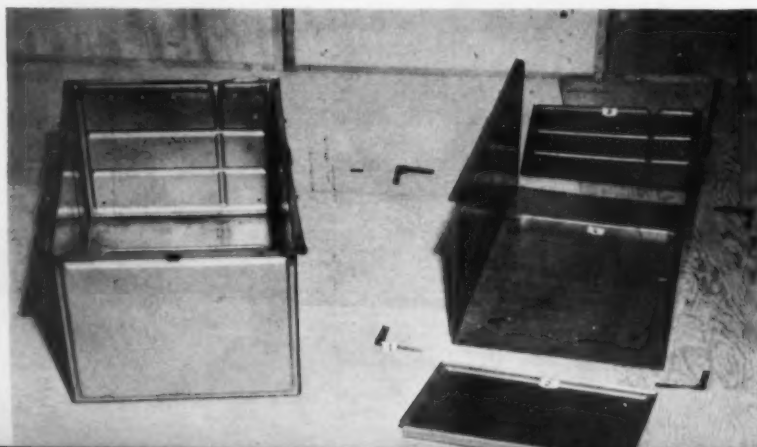
One of the important subdivisions of International Harvester's Manufacturing Research Department, located in Chicago, is the laboratory concerned with packag-

ing, handling and shipping practices.

At the product protection laboratory, staff members constantly work with appliance production personnel at the Evansville, Indiana, Works, where the I-H lines of refrigerators, freezers, dehumidifiers, and room air conditioners are produced.

Through coordination of effort, a new method was developed for packing the un-assembled parts for two refrigerators in one unit package for overseas shipment. This type of shipment is done only where there are welding, finishing and assembly facilities at the overseas destination. (For regular export shipment, the completely assembled refrigerator is shipped as one unit.)

To protect the stamped refrigerator parts from corrosion due to high



Showing parts for an inner liner alongside the completed liner. At the overseas destination, welding operations complete the liner.

JUNE • 1954 finish

humidity usually encountered in overseas shipments, International Harvester uses a relatively new material referred to as VPI, known as "vapor phase inhibitor." The term VPI is generally accepted for the chemicals known also as "volatile corrosion inhibitor" and "migrating vapor rust inhibitor."

This protective material for ferrous metals is unique in that a wrap-

Editor's Note:

A five page feature in the July 1949 issue of *finish* gave a detailed description of "How International Harvester Answers Materials Handling and Product Protection Problems."

The article told how the Manufacturing Research Department works with some 20 separate I-H operations, located from coast to coast, in the development of better manufacturing and product protection methods.

This latest article on packaging un-assembled refrigerators for overseas shipment represents the culmination of many months of research on a specific problem related to product protection.

ping material, coated or saturated with the preservative, will exude vapors to prevent corrosion of the parts being protected.

The export package

The export package for the shipment of parts for two un-assembled household refrigerators consist of a nailed wooden box and a water proof liner. Inside the box is placed the "telescoped" shells and inner liners for the two refrigerators, plus the crisper pans, panels, brackets and other stamped parts, as well as the condensers and motors — with the VPI preservative paper interlaced between the parts.

Neatly stacked on top of these parts are individual boxes containing purchased components such as nameplates, freezer compartment doors, shelving, gaskets, moulding, etc.

In the final stages of packing, the two doors (secured together with tape) are placed on top of the other packed parts, and the export box is sealed. Altogether, there are some 275 individual parts for each refrigerator packed in the unit export box.

finish JUNE • 1954



Early stage of packing, with contents including compressor unit, freezer compartments, small plastic trim, telescoped cabinets and liners, and loose parts.



With packing job half complete, contents added include shelving, crisper pans and base assembly. Note the VPI preservative paper interlaced between parts.

In final stages of packing, two doors are placed on top of other parts, and the container is sealed with aid of liquid asphalt and waterproof paper. After top is nailed shut, heavy duty wire is tensioned around the fully-sheathed wooden box at three points.



Admiral

TAKES
EXTRA
PRECAUTIONS



CRATING OF NEW Admiral RANGES FOR SHIPPING THROUGHOUT THE UNITED STATES

Yes, Admiral takes extra precautions in crating and meets Safe Transit standards to eliminate possible damage to its products while in transit.

Admiral and many other leading appliance manufacturers depend upon Chicago Mill and Lumber Company to assist them in eliminating possible damage to their products while in transit. These companies know that they can depend upon Chicago Mill to work closely with their own crating engineers to develop the best possible crate design. This cooperation, combined with our "know how" resulting from 72 years' experience, and tests in a Safe Transit Laboratory, can produce the box or crate with the right combination of materials for the stacking, handling and safe shipping of the product.

Why not contact Chicago Mill and let us show you what we can do to improve the crating and protection of your product.

Wirebound,
Nailed or Hinge Corner
Cleated Plywood
Cleated Craveneer
Cleated Corrugated
Watkins Type Containers
Shop and Tote Boxes
Woodsteel Nesting Boxes

★
FOR DOMESTIC OR EXPORT
FOR PEACE OR DEFENSE

A shipping container for
every shipping purpose

FOR SAFER TRANSIT BY • TRUCK • BOAT • TRAIN • PLANE

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AIM* for PRODUCTION-LINE PACKAGING with Acme Steel Strapping Machines



Acme Idea Man,
Harold Schultz of
Detroit, worked with
Chrysler officials
in setting up this
packaging system.

ask your
***Acme Idea Man**
to help solve your
problems

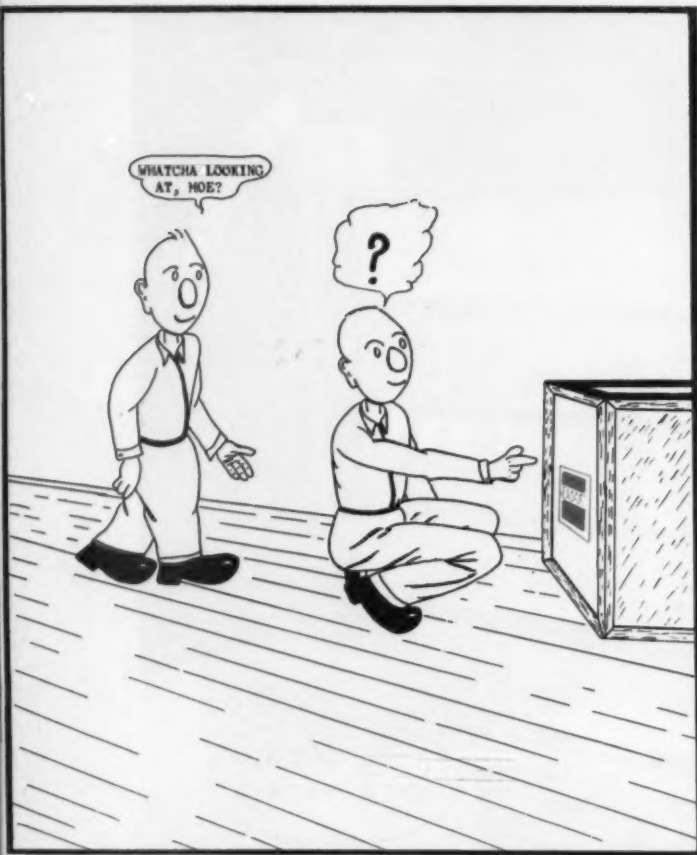
Industry is discovering new economies in time and money where centralized strapping operations have been made automatic. Acme Steel Strapping Machines, for example, help maintain the continuous flow of overseas shipments at the Chrysler Corporation plant at Marysville, Michigan (Idea No. 419). Here, the size or shape of the container makes little difference in moving export boxes and packages hour after hour through the machine . . . automatically tensioning, cutting and welding the strapping.

There is a place for Acme Steel Strapping Machines wherever fast, easy application of steel strapping is required on a continuous, volume basis. Ask your Acme Idea Man for complete details. Or, write Acme Steel Products Division, Dept. RS-64, Acme Steel Company, 2840 Archer Avenue, Chicago 8, Illinois.

AIM For Safe, Lower-Cost Shipping

ACME STEEL CO.
CHICAGO

**ACME
STEEL**



There's progress on the "two-way street"

IN THE words of R. P. Carr (Frigidaire), chairman, Carrier Coordinating Division of the National Safe Transit Committee:

"The National Safe Transit Committee is a cooperative movement for reducing shipping loss and damage for major appliances and allied products. Since its inception it has been planned as a *two-way street* involving the cooperation of both shippers and carriers."

R. F. Bisbee (Westinghouse), general chairman of the NST Committee, has held several meetings in the southeastern states, the last being in Tampa, Florida. In practically every meeting, 50 to 75 carriers were present, including Weight Inspection Bureau representatives, vice presidents

of railroads, claim agents; also similar representatives from various trucking companies and associations.

In practically every case, the carriers gave Bisbee the following information regarding cooperation by the carriers on the "*two-way street*" and in regard to manufacturers using the NST Label:

"It is only reasonable that packaged products that bear the Safe Transit label will be handled with greater care by all carriers *because* the manufacturer has done everything known to shipping science to assure safe delivery of their products. It signifies that the manufacturer has completed *his side of the street* and why should the carriers not complete *their side of the street*."

"The carriers entrusted to fulfill their part of the program by more careful handling, modern facilities

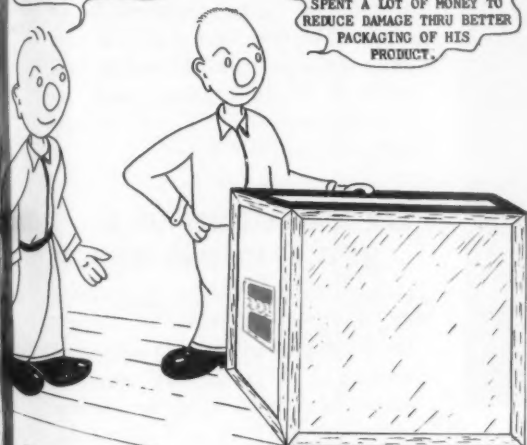
to Page ST-10 →

The accompanying cartoon illustrations are from "THE FIRING LINE," a publication of the Claim Department, Carolina Freight Carriers Corp., Cherryville, N.C., "designed expressly for the purpose of reducing freight loss and damage. Other slogans they use are "Safe Transit is Your Job!" and "Remember, Shippers and Receivers Go Where They Are Solicited and Stay Where They Are Well Treated!"

Note: See Poem from THE FIRING LINE, page ST 11.

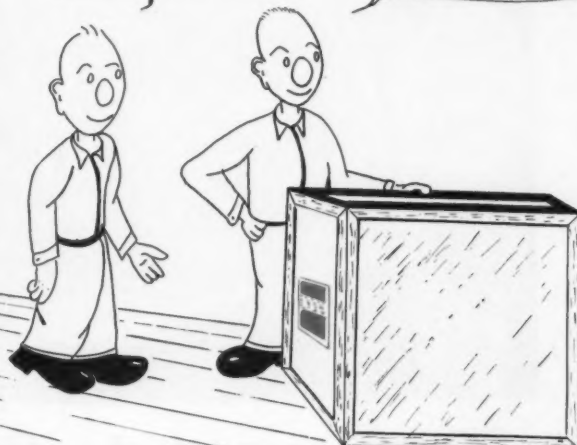
HERE I DO, MOE — THAT'S
A NATIONAL SAFE TRANSIT LABEL
MEANS THAT THE MANUFACTURER
HAS TAKEN ALL NECESSARY
PREVENTIVE MEASURES KNOWN TO
SHIPPING SCIENCE TO
REDUCE DAMAGE LOSSES TO THE
PRODUCTS HE SHIPS.

YOU'RE SO RIGHT, JOE.
THIS PARTICULAR SHIPPER HAS
SPENT A LOT OF MONEY TO
REDUCE DAMAGE THRU BETTER
PACKAGING OF HIS
PRODUCT.



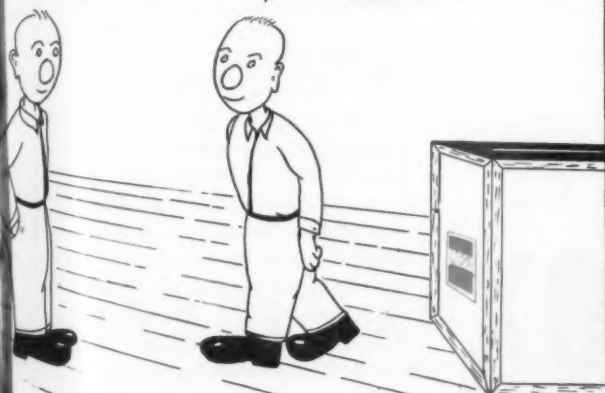
THAT'S A GOOD INVESTMENT
ON THE PART OF THE SHIPPER
AND WILL CERTAINLY PAY OFF
IN THE LONG RUN.

YOU CAN SAY THAT AGAIN, BUDDY!
HOWEVER, ALL MANUFACTURING,
ENGINEERING, AND QUALITY
EFFORTS ARE IN VAIN IF THE
PRODUCT REACHES ITS DESTINATION
IN A DAMAGED CONDITION.



I HEAR YOU TALKING, BOY, AND
THAT'S WHERE YOU AND I
ENTER THE PICTURE.

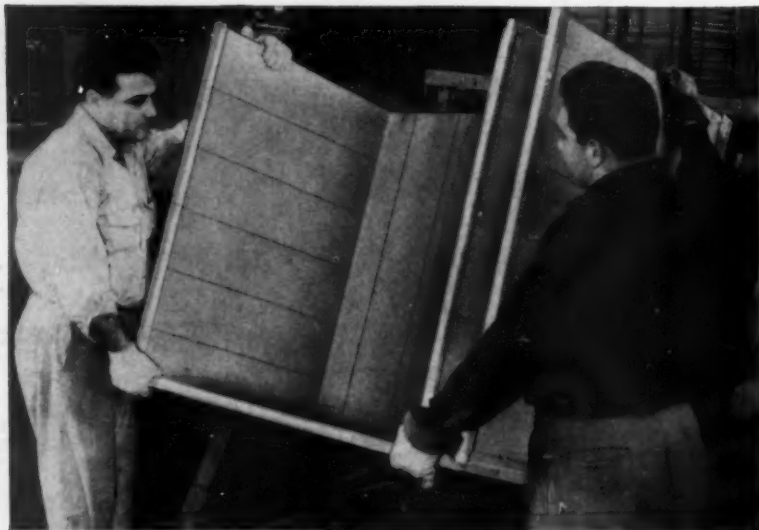
RIGHT, JOE! THIS WHOLE NATIONAL
SAFE TRANSIT PROGRAM IS A
COOPERATIVE MOVEMENT — SORT
OF A "TWO-WAY STREET" — THE SHIPPER
GIVES US A GOOD PACKAGED PRODUCT,
AND IT'S UP TO ALL OF US TO
GIVE HIM PROMPT AND SAFE SERVICE
THRU CAREFUL HANDLING.



SAFE HANDLING IS EVERYONE'S JOB! DON'T FORGET
THIS LABEL — THE SHIPPER IS TRYING TO HELP YOU
DO A BETTER JOB SO PLEASE COOPERATE BY HANDLING
HIS FREIGHT WITH CARE!



SOLVED with one Generalift Pallet Box



FOUR separate handling and shipping problems

Here's what happened when Chase Brass and Copper Company of Waterbury, Connecticut, switched to Generalift Pallet Boxes:

SOLVED: A STORAGE PROBLEM

Generalift Pallet Boxes arrived knocked down, for easy storage—50 took no more storage space than 8 of the former containers.

SOLVED: A PACKING PROBLEM

Generalift Pallet Boxes assembled, packed and closed—in minutes.

SOLVED: A HANDLING PROBLEM

Generalift Pallet Boxes were made for easy fork-lift handling.

SOLVED: A SHIPPING PROBLEM

Generalift Pallet Boxes held more, cost less, and weighed less than the old style container—a 102-lb. Generalift Pallet Box carried 2100 lb. of pay load.

See how Generalift Pallet Boxes can help solve your handling and shipping problems—at a saving. Write for full details.

Engineered Containers for every shipping need

Factories: Cincinnati; Denville, N. J.; East St. Louis; Detroit; Kansas City; Louisville; Milwaukee; Prescott, Ark.; Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston.

General Box

GENERAL BOX COMPANY, 1823 MINER STREET, DES PLAINES, ILL.



Two-way street

→ from Page ST-8

and education, make the NST program a 'two-way street' so that the carriers may also proclaim they are doing *their* part of the program to assure safe delivery of the packaged product."

In Bisbee's opinion, the NST label is definitely being recognized by all types of carriers, and with this kind of cooperation it should not be long until all of the products made by manufacturers that are now certified will bear the NST Label.

AAR CONDUCTS SIXTH IN A SERIES OF LOADING SEMINARS

The sixth of a series of seminars on "Proper Preparation of Freight for Shipment" and the "Loading and Bracing of Freight in Cars" was conducted April 26-30, at the Association of American Railroads' Container and Loading Research and Development Laboratory, in Chicago.

The art and science of container construction, interior packing, cushioning, closing and reinforcement of containers—as well as the stowing and bracing of freight in railroad cars—were discussed during the program.

COLLEGE-INDUSTRY GROUP PUBLISHES BROCHURE

ON MATERIAL HANDLING

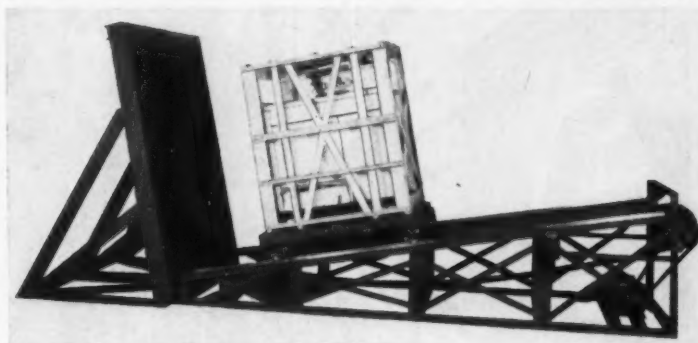
Teachers and students of material handling, as well as manufacturers and users of material handling equipment, will be interested in a new brochure published by the College-Industry Committee on Material Handling Education.

The Material Handling Institute and the American Material Handling Society jointly sponsored by committee with eight objectives such as to act as a central source and authority on sound, authentic information on material handling education. The committee publishes a list of schools which offer courses on material handling subjects. It compiles lists of text books, booklets and films, and sponsors seminars where executives of manufacturing and user companies can discuss educational problems.

Complete Equipment for your NATIONAL SAFE TRANSIT LABORATORY



Gaynes "Remote Control" Drop Tester — Most advanced drop tester on the market. Makes all others obsolete. Patented remote control feature, ruggedly built, foot treadle electrical release and hand lever height adjustment.



Gaynes Incline Impact Tester (NST Approved) — All steel unit has "V" track with four "V" ball-bearing wheels. Provides flexible impact zone control. Power raising and automatic release. Rigid, reinforced, all-steel back-stop.



Gaynes "Heavy Duty" Vibration Tester — All steel construction with long wearing moving parts, variable speed and power driven assembly provides accurate control of vibration cycle.

Make your NST Laboratory a show place — with equipment you will be proud of and can rely upon — all available from a single source.

1. The only scientifically designed, friction-free Incline Impact Tester.
2. A well-built, long-lasting "Heavy Duty" Vibration Tester.
3. A rigid all-steel "Remote Control" Drop Test Unit.

All equipment moderately priced • prompt delivery • phone or write for complete information and prices

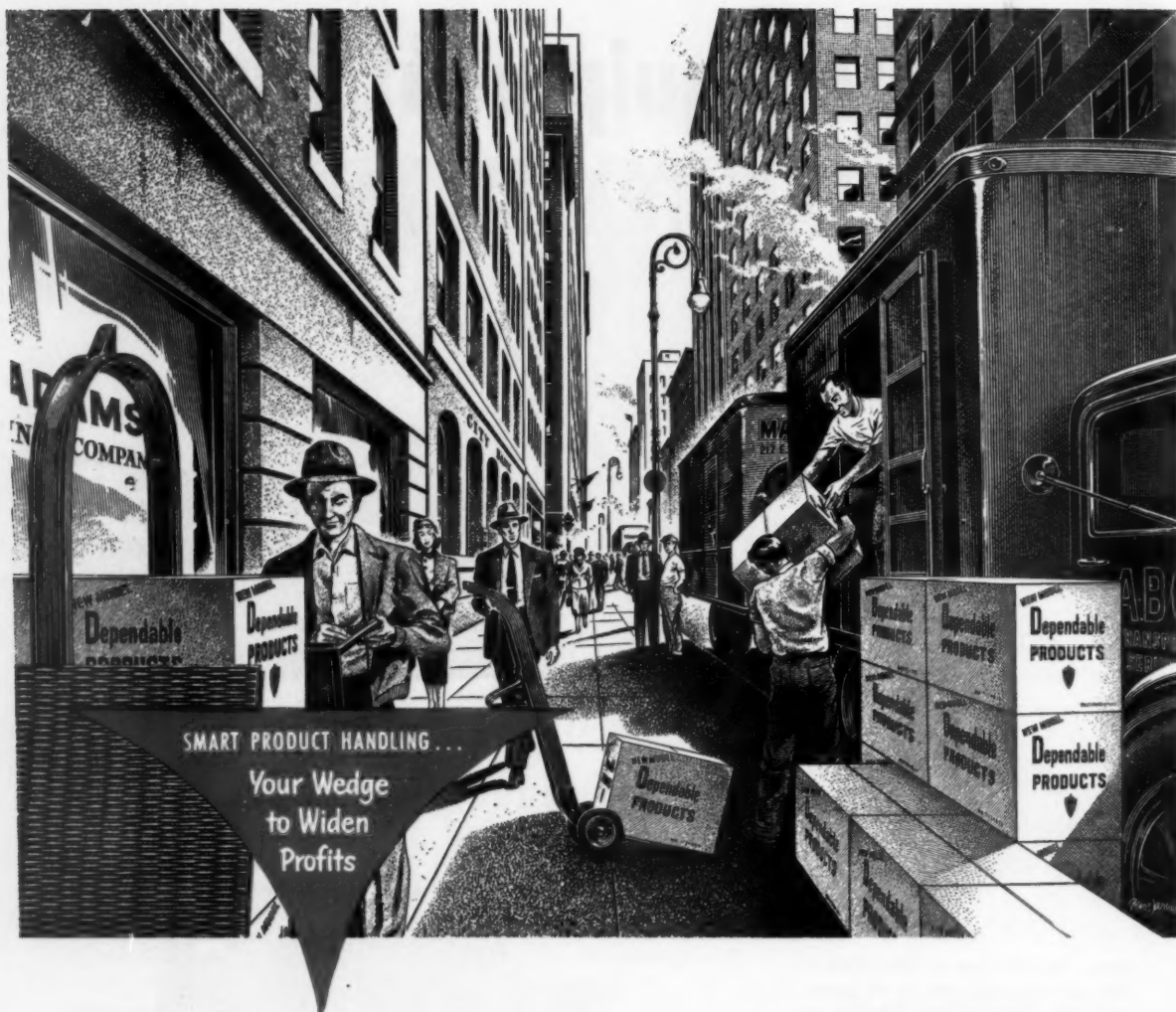
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OVER 30 YEARS' EXPERIENCE IN MACHINE DESIGN AND FABRICATION

finish JUNE • 1954

ST-11



Ship Your Sales Story Along With Your Product In Eye-Catching Gaylord Boxes

There are no extra freight charges for shipping a solid sales message on every attractively printed Gaylord box. You profit because your shipping dollars do double duty by promoting your product all along your channels of distribution. With these Gaylord "traveling billboards" you'll regularly reach hundreds of important buyers, sellers and handlers

who see your product before it's unpacked. Sizes, shapes and designs that work to promote your product, as well as to protect it, are an important Gaylord "extra" service . . . and with Gaylord's quality of materials and workmanship, you can be sure every box is as brawny as it is beautiful. For information and cooperation, phone your nearby Gaylord office.

GAYLORD CONTAINER CORPORATION

SALES OFFICES



General Offices: SAINT LOUIS, MO.

COAST TO COAST

CORRUGATED AND SOLID FIBRE BOXES • KRAFT PAPER AND SPECIALTIES • KRAFT BAGS AND SACKS • FOLDING CARTONS

ST-12

JUNE • 1954 finish

ANNOUNCE JUDGES FOR PACKAGING, HANDLING COMPETITION

Plans are now complete for the 1954 National Protective Packaging and Materials Handling Competition to be held at the Coliseum, in Chicago, September 28-30.

The competition will be held concurrently with the 9th National Industrial Packaging and Materials Handling Exposition and annual Technical Short Course, co-sponsored this year by the Society of Industrial Packaging and Materials Handling Engineers and the University of Illinois.

R. A. Mantz, supervisor, materials handling and product protection laboratory, manufacturing research department, International Harvester Co., is chairman of the 1954 competition. Associate chairmen are Wilburn Couch, packaging engineering dept., GMC Truck & Coach Division, General Motors Corp., and K. W. Kruger, division of material container, Forest Products Laboratory, U.S. Dept. of Agriculture.

A feature of this annual competition is its restriction to users of packaging and materials handling equipment and supplies. Divided into seven distinct groups, according to types of containers and materials handling techniques, group chairmen and participating judges, as announced by Mantz, include:

Group 1—*Corrugated or Solid Fibre Boxes*—Wilmer J. Balster, The Don L.



RAY A. MANTZ, CHAIRMAN

Quinn Co., chairman; J. L. Krager, Jr., RCA Victor Division, Radio Corp. of America; C. R. Gustafson, American Radiator & Standard Sanitary Corp.; F. R. Campbell, National Gypsum Co.; P. A. Parker, Anchor Hocking Glass Corp.

Group 2—*Nailed Wood Boxes and Crates*—W. B. Keefe, Westinghouse Electric Corp., chairman; H. G. Nelson, shipping container research lab., Owens-Illinois Glass Co.; J. F. Mitchell, Ford Motor Co.; Edward Zelinski, Hotpoint Co.; A. P. Kivlin, Assn. of American Railroads.

Group 3—*Wirebound Boxes and Crates*—M. L. Gusler, purchasing dept., tank division, Ford Motor Co., chairman; G. E. Falkenau, engineering division, E. I. du Pont de Nemours & Co.; E. R. Stivers, Package Research Laboratory; R. F. Uncles, American Cyanamid Co.; R. L. Brandes, distribution section, General Electric Co.

Group 4—*Cleated Panel Boxes*—P. H. Paulsen, Wm. H. McGee & Co., Inc., chairman; John Mount, North America Co.; L. R. Burroughs, Ford Motor Co.; D. A.

Miller, Stewart-Warner Corp.; J. A. Mustard, Jr., Thomas A. Edison, Inc.

Group 5—*General*—H. F. Jacobsen, packaging and loading dept., American Steel & Wire Co., chairman; J. P. Corcoran, package engineering dept., Aldens, Inc.; B. R. Olhausen, general traffic dept., packaging section, Aluminum Co. of America; J. S. Renner, Admiral Corp.; F. L. Keefe, Micro Switch Div., Minneapolis-Honeywell Regulator Co.

Group 6—*Export Packages*—A. S. Roberts, Insurance Co. of North America, chairman; C. J. Zusi, Container Laboratories, Inc.; H. A. Hunt (tentative) shipping, packing and receiving, Burroughs Adding Machine Co.; J. L. Martin, packaging consultant; J. F. Carrigan, Spiegel, Inc.

Group 7—*Materials Handling*—Ralph O'Reilly, service section, General Motors Corp., chairman; R. L. Franing, International Harvester Co.; L. A. Seversen, warehousing division, Central Scientific Co.; R. J. Sweeney, of Drake, Startzman, Sheahan, Barclay, Inc.

All groups will be judged by committees of engineers in their respective fields. Winners in the six packaging groups will be selected on the basis of safety, or the degree of product protection afforded by the container, conformance to carrier requirements; ingenuity in application of materials and methods; ease of handling in assembling and packing; intra-plant movement and warehousing, shipping and loading, and ease of unpacking; economy in use of materials, shipping weights and transportation charges, and prevention of loss or damage claims and complaints; and practical utility from an overall consideration.

In the materials handling classification, the governing factors for determining winners will be reduction of handling costs; economies in warehousing and utilization of storage space; increase of plant capacity; reduction of inventory; improvement of product protection; reduction of handling hazards; improvement of working conditions; facilitation of materials control; and speed-up of product delivery to consumer.

This will mark the 8th successive year for the competition, which is credited with being an important factor in the development of scientific packaging and materials handling techniques during recent years. To date, approximately \$20,000 in cash awards and certificates have been presented to about 425 winners, all of whom represent consumers of packaging and materials handling products, equipment or services.



In Fibre Box Assn. competition held recently—first prize in the class of "containers for large appliances" went to this box for an electric refrigerator. The container was made for the Crosley Division of Avco Mfg. Corp. by Menasha Wood-ware Corp. A listing of winners in the Association's 1954 competition was announced in the May issue.

SAFE TRANSIT IS YOUR JOB!

Satisfied shippers and receivers will surely abound
As soon as safe transit's secret in your company is found
Friendlier customer relations are important assets
Eliminate rough handling, and you'll have less regrets!

The devastating effects of careless loading are hard to believe
Remember safe transit is easy to achieve
Always keep your eyes open — in your work be aware
Never get slouchy — use only the greatest of care
Shippers and receivers throughout the land will attest
In-transit damages caused by carelessness are a continual pest
Take this problem to heart, and please, please, do your very best!

Here Are the Primary Products Covered by the Safe Transit Program

Following is a listing of the primary products covered by the Safe Transit Program. Any manufacturer of one of these products can become certified without cost or obligation after the packaged product has been subjected to the NST Pre-Shipment Tests in the Manufacturer's plant or in any one of the 31 Certified Laboratories.

If you are a manufacturer of one of these products, and do not have the privilege of using the Safe Transit sticker, we urge that you contact National Safe Transit Committee headquarters, 1346 Connecticut Ave., N.W., Washington 6, D. C., immediately for complete information on how you can take advantage of this voluntary, cooperative program to reduce costs, reduce in-transit losses, and get a new recognition for your company and its products by carriers, distributors and dealers.

Air conditioners	Ironing machines
Air coolers, evap.	Irons, flat
Air heaters	Kitchen sinks
Beverage coolers	Kitchen cabinets, metal
Blenders (mixers, beaters, etc.)	Motors, electric
Burners, conversion, gas	Plumbing ware, bathtubs, sinks and lavatories
Burners, oil	Pumps and pumping equipment
Business machines	Radios, home
Coffee makers	Ranges, all types
Cooling coils	Range boilers
Coin-operated vending machines	Refrigerators, domestic and commercial
Deep fat fryers, etc.	Roasters
Dehumidifiers	Shower stalls, metal
Dishwashers	Signs, metal (quantity production)
Display cases, commercial	Soda fountains
Dryers, laundry	Storage tanks, milk, etc.
Fans	Storage tanks, hot water, non-electric
Food waste disposers	Storage water heaters, electric
Freezers	Stoves, heating
Furnaces, all types	Table tops, metal
Furniture, metal	Television
Grills, waffle irons	Toasters
Hair Dryers	Vacuum cleaners
Holloware, cooking	Washing machines
Hospital ware	Water coolers
Hot plates	
Ice makers	
Incinerators	

This is not an all-inclusive listing. If you manufacture other similar products, we suggest that you contact the NST office for complete information on the packaged products on which you would like to obtain certification.

1955 MATERIALS HANDLING SHOW TO BE HELD IN CHICAGO

The next Materials Handling Exposition will be held at the International Amphitheatre, in Chicago, during the week of May 16, 1955, it was announced by Clapp & Poliak, Inc., the firm which founded and produces the event.

The theme of the show, "The Concept of Obsolescence," has been adopted to emphasize to top management that most handling equipment, put to use in recent years, is already outmoded by huge technological advances in handling methods.

KELSEY TO REPRESENT ASME AT MECHANICAL HANDLING SHOW IN LONDON

The only American member of a panel discussing the subject "In



DON W. KELSEY

Search of Better Handling", at the Mechanical Handling Exhibition and Convention in London, England, in June, will be Don W. Kelsey, of the Don W. Kelsey Co., Detroit.

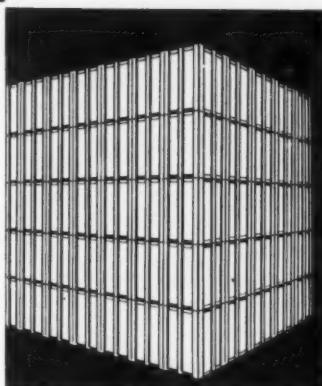
Kelsey, who will represent the American Society of Mechanical Engineers, is a member of the executive committee of the Detroit Section of ASME.

The exhibition is held biennially at the Olympia in London during the month of June. It is the British counterpart of the American Materials Handling Exposition which is held on alternate years.

KIECKHEFER MILWAUKEE

WATKINS CONTAINERS ARE BETTER

BECAUSE



You receive faster service and better quality as all components are manufactured complete on modern equipment in our own plants.

Cleats are permanently attached to the corrugated board with moisture resistant glue — *under pressure of hydraulic equipment* resulting in smooth interiors with no obstructions to damage the fine finished products.

The tube corners are stapled on automatic equipment insuring close evenly spaced stitches and are additionally reinforced with a special cement.

Skid bases are manufactured for strength. The parts are accurately assembled on new modern nailing equipment. All mounting holes are drilled simultaneously on special equipment insuring absolute accuracy.

Producers of economical product protection for "around the corner or across the nation". Service includes Pallets, Kieckhefer Palet-boxes, Industrial Lumber and specially-designed special-purpose containers.

Whether your current problem is fragile neon signs, industrial equipment or finished products in volume production—check Kieckhefer-Milwaukee for a practical, economical solution.



KIECKHEFER BOX AND LUMBER CO.

• WOODEN BOXES • BOX SHOOKS • CRATES • CLEATED FIBRE SHIPPING CONTAINERS •

1715 WEST CANAL STREET, MILWAUKEE 3, WIS.

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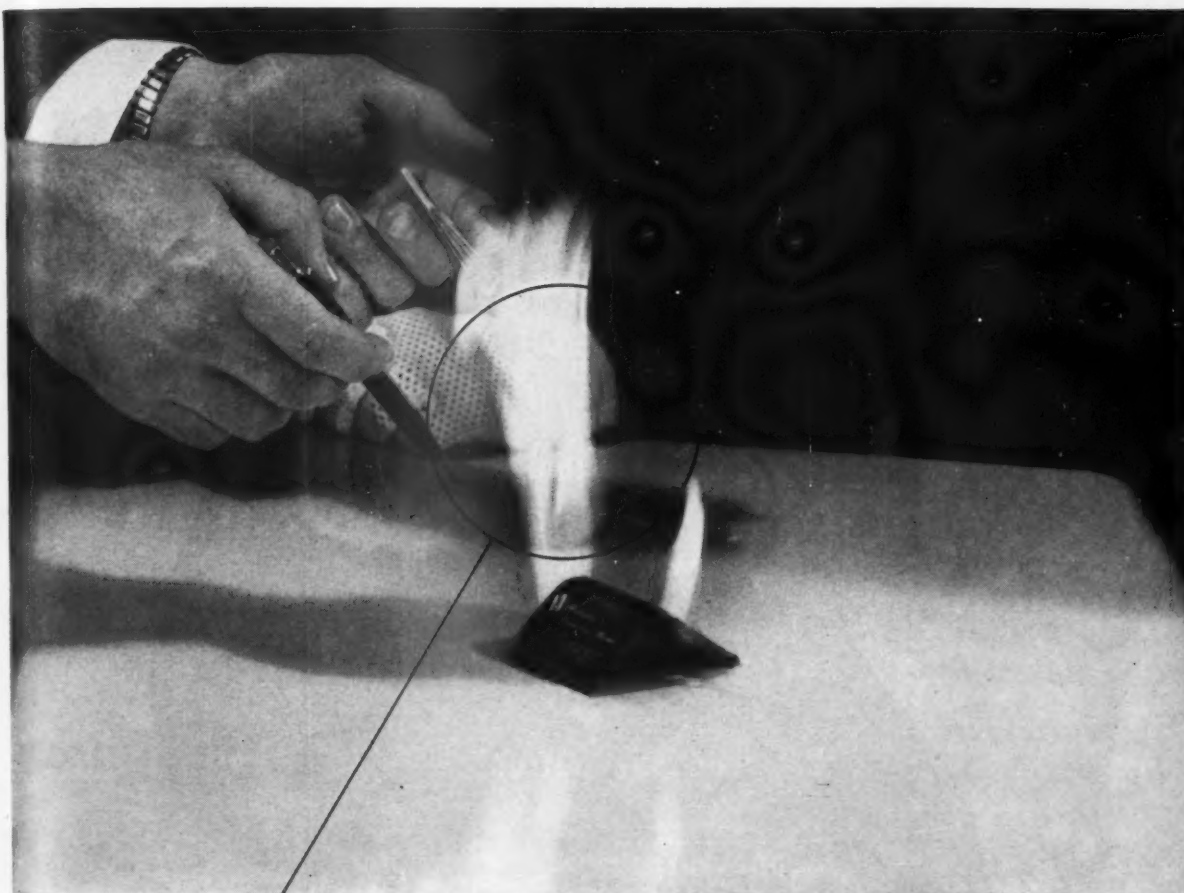
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*

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A Porcelain Enameled finish offers so many unusual sales features for your products that one of its biggest advantages is often overlooked.

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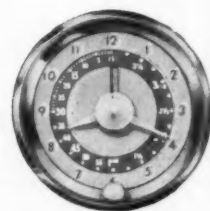
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July • 1954

VOL. 11 • NO. 7

finish

MONTHLY TRADE PUBLICATION

Established January 1944

Published by

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York Street at Park Avenue

Elmhurst, Illinois

Telephone Elmhurst 9706

A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. Includes technical and practical information on plant facilities and manufacturing problems from raw metal to safe delivery of the finished product, with special emphasis on fabrication, metal preparation, metal finishing, assembly, and packaging and shipping.

Free controlled circulation to management, purchasing, engineering and key plant personnel in metal product manufacturing plants. To others, subscription price is \$5.00 per year, domestic. To all other countries \$8.00 per year (U.S. funds).

Editor and publisher • **DANA CHASE**

Associate editor • **MATT E. HEURTZ**

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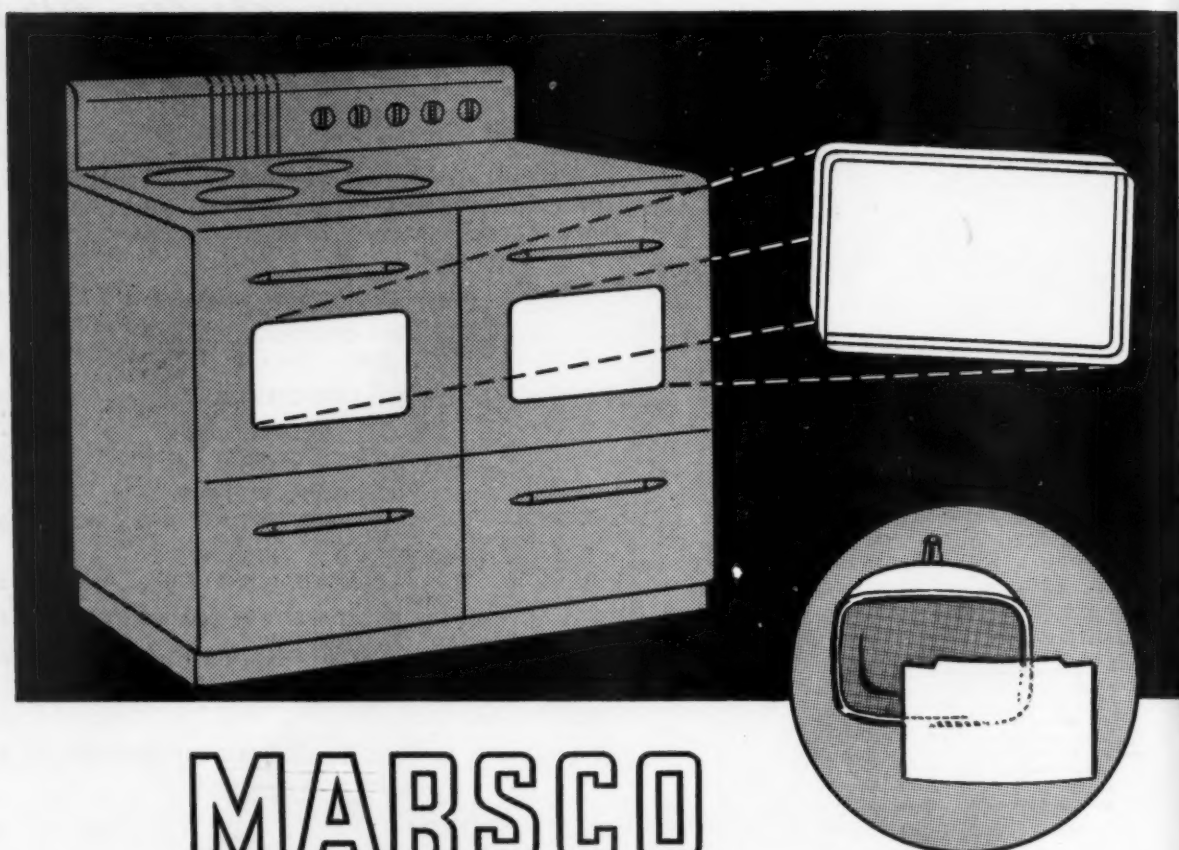
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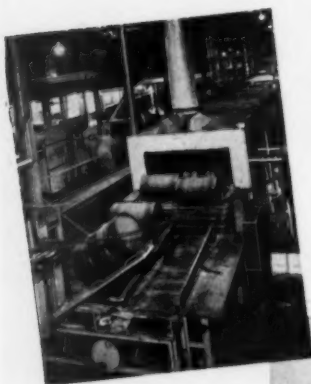
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FOR EXTRA PROTECTION

Steel Drums made by United Steel Barrel Company of Philadelphia, Pennsylvania, are chemically cleaned and phosphate coated in an integrated spray Granodizing process:



UNITED DRUMS fabricated from Standard Gauge Steel are available in all sizes, with special linings for a variety of products, and decorated with any desired design.

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MEETINGS

HOUSEWARES, APPLIANCE SHOW

National Housewares Manufacturers Association, national housewares and home appliances exhibit, Auditorium, Atlantic City, July 12-16.

ELECTROPLATERS CONVENTION

American Electroplaters Society, annual convention, Hotel Statler, New York City, July 12-15.

HOME LAUNDRY MFRS. MEETING

American Home Laundry Manufacturers Association, summer meeting, Grand Hotel, Mackinac Island, Michigan, July 25-28.

EASTERN ENAMELERS OUTING

Eastern Enamelers Club, annual outing, Yardley, Pa., August 28.

ENAMELERS FORUM, MEETING

Porcelain Enamel Institute, annual Shop Practice Forum, University of Illinois, Urbana, September 8-10.

Porcelain Enamel Institute, annual meeting, The Greenbrier, White Sulphur Springs, W.Va., Sept. 29-Oct. 1.

GAS ASSOCIATION CONVENTION

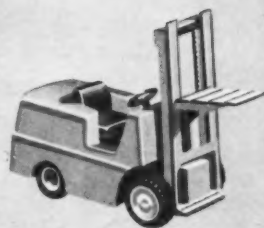
American Gas Association, annual convention, Atlantic City, October 11-14.

NATIONAL METAL SHOW

National Metal Exposition and Congress, International Amphitheatre, Chicago, November 1-5.

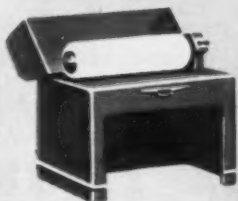
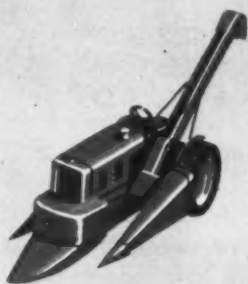
ELECTRICAL MFRS. MEETING

National Electrical Manufacturers Association, annual meeting, Haddon-Hall Hotel, Atlantic City, November 8-11.



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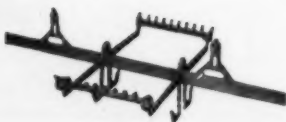
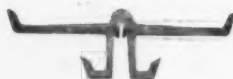
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FAHRALLOY...

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There's always good reason why one product forges ahead to leadership in its field. Product performance, more than any other one factor, is largely responsible for this success. It is product performance which has made Fahr alloy burning tools the No. 1 choice of the porcelain enamel industry . . . product performance for over 20 years. When Fahr alloy alloys chrome, nickel and other metals to cast burning tools the specific service conditions which the castings must meet are given full and careful consideration. Then the metallurgically correct composition is determined to assure longest possible life under those tough service conditions at the high temperatures involved. With such exacting standards, is it any wonder why porcelain enamellers just naturally turn to the leader . . . to Fahr alloy for the answer to their burning tool problems? You'll find your answers at Fahr alloy, too.

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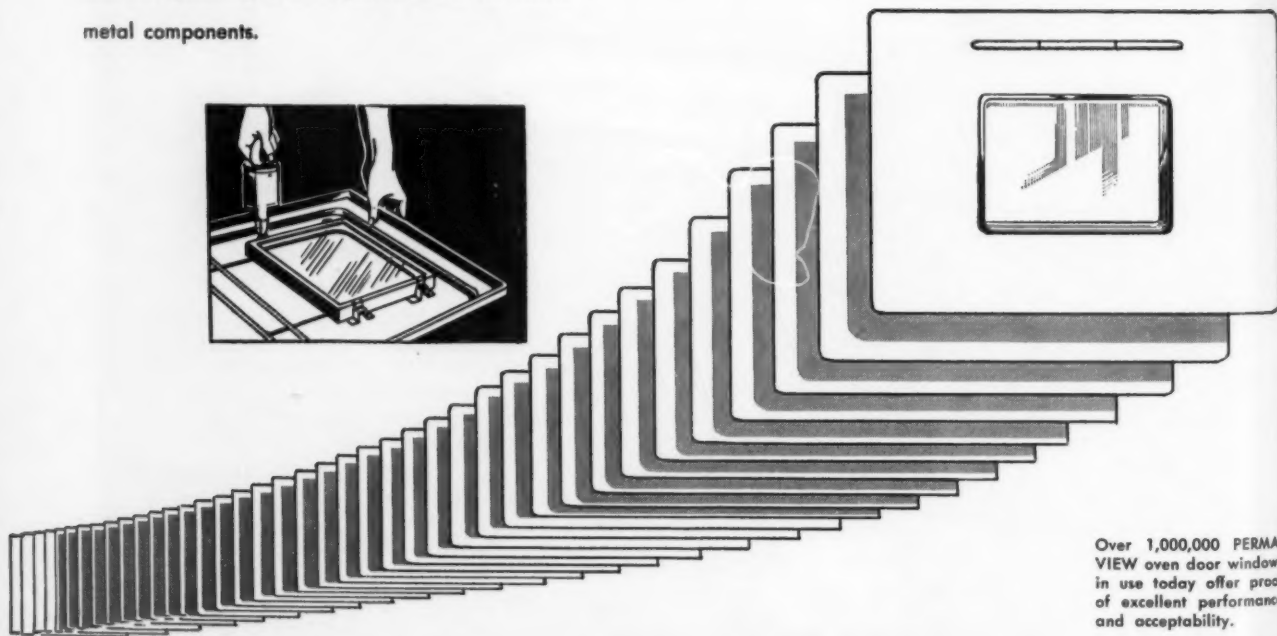
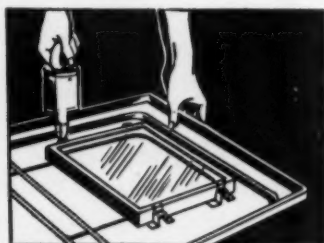
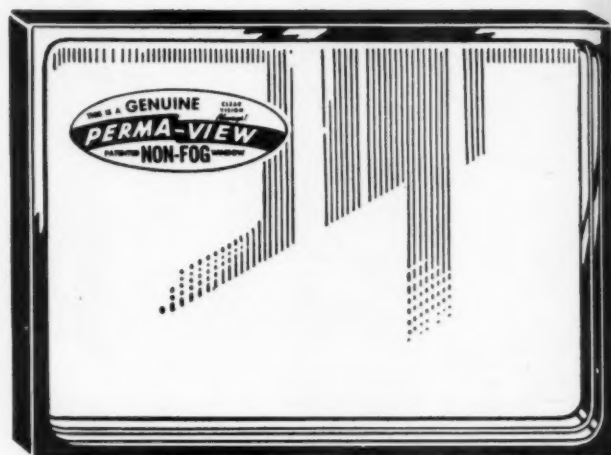
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*engineered to the product
for years of carefree use*

● The PERMA-VIEW window is pre-engineered and comes to you ready for immediate installation in your range. "Out of our carton — into your door."

PERMA-VIEW's crystal clear glass and gleaming chrome lend eye-appeal and salable beauty. The built in seal provides the "no-fog" feature and assures a clearly visible oven interior.

Only top quality materials are used in the Mills' plant, including the heat treated, crystal clear glass and the gleaming chrome plated metal for visible metal components.



Over 1,000,000 PERMA-VIEW oven door windows in use today offer proof of excellent performance and acceptability.

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make your
DOLLAR



Each year more and more porcelain enameling plants are learning how to make their dollar stretch when it comes to buying frit.

You stretch one way by saving on the original purchase price and you stretch another through more efficient plant operation.

You too can make these savings with Century time proved frits, frits that are tops for adding beauty and durability to your finished metal product.

If you haven't tried Century frit give us a ring right now — and stretch that dollar now!



CENTURY VITREOUS ENAMEL COMPANY

6641-61 S. Narragansett Ave., Chicago 38, Ill.

finish JULY • 1954

11

Why Lose Out to Competition?

Read this

BURDETT *"Radiant Heat"* **SYSTEMS' STORY**

Compare these figures

—of Mills Industries of Chicago — system including Burdett Bonderizing Unit, Dry-Off Oven, Prime Coat Oven and Finish Coat Oven. Presently, at partial capacity, production is 16,000 pounds per 8 hour day at an average fuel cost of approximately \$1.00 per hour per oven.

Think what this means competitively

Production ranges from small parts carried on trays to large 6'6" x 30" x 30" frame and cabinets of bottle dispenser cases and other types of dispensing units.

Average bake cycle is 15 minutes at 325° F.

Colors include the spectrum in both wrinkle finishes and enamels.

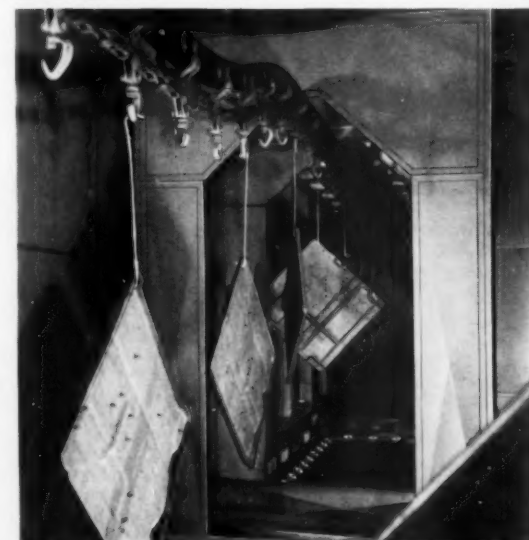
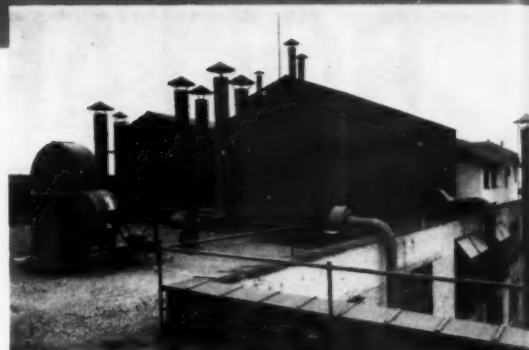
Chances are

—that without a Burdett "Radiant Heat" System you are at a decided competitive disadvantage in this phase of your production.

There is no obligation

—for recommendations. See results on your own type of work here at our plant, in our test ovens. Hear the whole story and meet competition on even ground.

We invite your inquiry



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3401 West Madison Street, Chicago 24, Illinois

Detroit Philadelphia New York Cleveland Dallas

Manufacturers of
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AIR MAKE-UP UNITS, SPRAY BOOTHS AND WASHERS

finish SUGGESTION BOX

Pre-coated metal coil cuts costs

refrigerator defrosters and clocks fabricated from pre-finished stock

BY fabricating clock parts from pre-coated coil, Weedsport Mfg. Co., Weedsport, N. Y., makes its time-pieces in less time.

Joseph J. Solon, president, believes that the savings effected by use of pre-coated metal has helped meet prices in the highly competitive clock field.

Weedsport makes kitchen clocks and combination refrigerator defrosters and kitchen clocks which bear the "Poole" trade name. It also makes mantle clocks.

30% cut in manufacturing costs

Among the advantages which the use of pre-coated metal coil has pro-

vided, Solon lists the following: cut manufacturing costs of some parts from 30 to 35%; increased color appeal in the finished product; and improved quality in parts where used.

The material was first used by the company for making clock dials. The pre-coated metal coil proved so satisfactory in this application that soon it was specified for bezels, sweep second hands, back support panels and gear train housing.

In the production of clock dials alone, the company reports that it cut costs by 50% through the use of pre-coated coil. Previously, the dials were made by two methods: (1)

Printed paper dials were glued by hand on plated metal supports, and (2) Dials were blanked from bare metal, then coated on both sides with white paint, and finally silk screened.

The third method tried was to blank the dials from pre-coated metal coil. The dial blanks were then silk screened with no intervening process. This method is now used exclusively at the Weedsport plant.

Supplied to the fabricating department to the correct width, the coil is fed directly into the press by the operator, thereby eliminating shearing, stacking and transporting strips. The 5% scrap loss with sheets was reduced to 2% by the use of coil—a scrap saving of 60%.

When paper dials were glued to plated metal supports, rejects were high no matter how fastidious the hand work. With the new method, rejects dropped to virtually zero.

Lower scrap loss

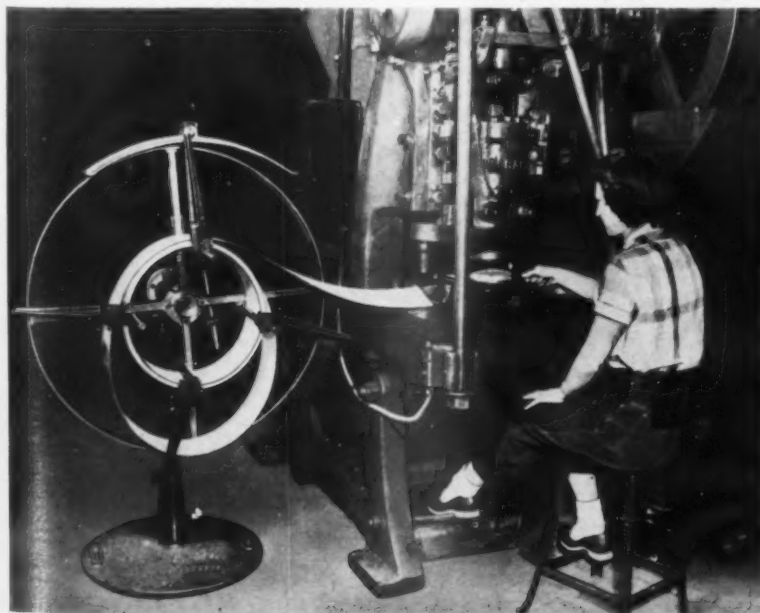
The savings from increased production when using automatic coil feeds is augmented by the lower scrap loss. With strips cut from sheets, scrap is lost at each end of the strip. Now, this loss is confined to the beginning and end of the coil.

A variety of finishes can be used—alkyds, ureas, alkydureas, vinyls, oleo-resinous, formaldehydes, sanitary lacquers, epons, plastics and semi-plastics, and adhesives.

Source for more information on pre-coated coil stock may be obtained by writing to finish.



A 50% saving is reported in production of dials by blanking from pre-coated metal coil. As shown here, coil is fed directly into the press, and blanks are then ready to silk screen. Coating is self lubricating.



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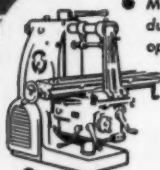
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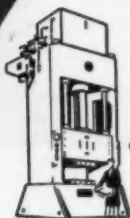
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PRODUCTS COMPANY



• Macco increases production of machining operations.



• Macco gives better finish, with increased feed and speed on cutting operations—and longer tool life.



• Macco reduces rejects and makes for greater speed in producing quality stampings and forgings.

To further reduce your metal-processing production costs, there is a Macco Cleaner or Rust Preventive scientifically compounded to greatly improve the finish quality of your product, be it enamel, lacquer, chromium plate or only rust proofing. Using highly superior Macco Compounds means not only better products, but also great reduction in production line cost.

Macco sales engineers have the ability and the experience. Let them assist you materially in solving your specific metal-working problems.

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job • there is a Better
MACCO metal-working
compound & cleaner



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Production Package

For Efficient, Economical Appliance Cabinet Manufacture



Punching and Notching Machine

The new Struthers Wells Punching and Notching Machine delivers maximum utility in pre-forming sheet metal wrap-arounds for refrigerators, freezers, washers, dryers, etc. A specialized cross between press and press brake, this machine mounts punching and notching die sets for precision sheet processing prior to roll-forming, and permits rapid changeover to flanging dies as desired. Capacity of the Struthers Wells Punching and Notching Machine illustrated is 150 tons, handling sheets up to 4 feet wide and 18 feet long.

SPECIAL SHEET METAL FORMING DIES

We furnish dies for notching the squared sheared sheet; dies for embossing and forming of machine compartment openings, etc., and dies for preparing flanges which are later tangent bent. The Punching and Notching Machine shown above is an ideal piece

of equipment for operating these large die sets so that all of the necessary mounting holes, embossing, louvers, etc., can be made in the flat sheet prior to the bending operation which forms the sheet into a one-piece wrap-around cabinet.

For further information, please contact our Sales Engineering Department.



Tangent Bender with Seam Welding Attachment



With this versatile unit, tangent-bending the preformed sheet into a cabinet wrap-around and welding the seam is a combined operation—requiring but a single operator. First, four bends are smoothly and quickly applied to the sheet by the Quadruplex Tangent Bender; then, with the work still in place, the welding head lowers and welds the seam, finishing the job. New low production costs are gained with this equipment—savings in time and labor are supplemented by less handling of material and less required floor space for machines and unwelded assemblies. Write for a consultation.

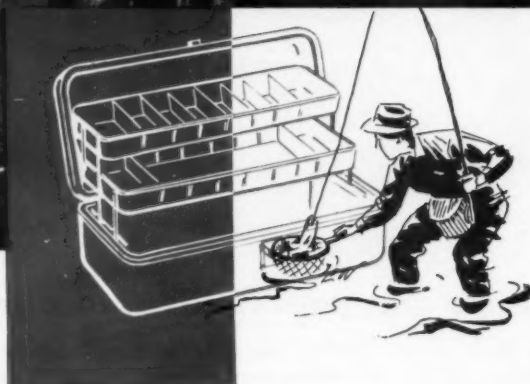
MACHINERY DIVISION
STRUTHERS WELLS CORPORATION
TITUSVILLE, PA.
Offices in Principal Cities

**World's Largest Manufacturer of
Tackle Boxes and Minnow Buckets uses the
World's Finest Electrostatic Paint Spray**



THE RANSBURG NO. 2 PROCESS

Four 3" Atomizing heads are used in the Ransburg No. 2 unit to paint fishing tackle boxes in the Stratton & Terstegge plant in Louisville, Ky.



● Stratton & Terstegge Co., Inc., in Louisville, is the world's largest producer of fishing tackle boxes and minnow buckets. Their products—in a variety of styles and finishes—are sold under the trade names of "My Buddy" and "Falls City."

Originally, the company hand sprayed both exteriors and interiors of the tackle boxes. Then, in 1947 efficiency was stepped up when they installed a Ransburg No. 1 Process to coat the box exteriors.

Now, Stratton & Terstegge uses the Ransburg No. 2 Electrostatic Paint Spray which enables them to achieve even further efficiency. Paint savings amounts to 25%, and production is increased 10% with the Ransburg No. 2 over the No. 1 Process! Rejects are practically nil . . .

quality of the work is improved . . . clean up time and maintenance is cut to a minimum . . . there's no compressed air to worry about, for the paint particles are electrostatically atomized with the Ransburg No. 2.

Although labor and material costs have increased substantially the past two years, the improved and more efficient plant operations have enabled this company to continue to produce their products at NO increase in price to the ultimate consumer.

Want to know how the Ransburg No. 2 can help cut costs in your painting department and still provide a higher quality and more uniform finish? Write for our brochure which shows numerous on-the-job examples of the Ransburg No. 2 Process.

Ransburg

ELECTRO-COATING CORP.

Indianapolis 7, Indiana

RANSBURG

THE finish *spotlight*



Revco has introduced this built-in refrigerator-freezer to inspire new ideas in kitchen design for new homes, or in remodeling old homes. The unit consists of an 8.3 cu. ft. automatic defrost refrigerator in combination with a 6.3 cu. ft. Revcold freezer. The outside doors are finished in stainless steel or in Buttercup yellow, which may be refinished to match or complement kitchen walls. Right or left-hand opening doors are optional.

How a Fosbond cycle including Actidip can CUT YOUR PHOSPHATIZING COSTS AS MUCH AS 40%

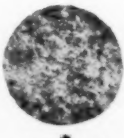
If Your Company Now Applies Zinc Phosphate Paint-Bonding Coatings, This Is "Must" Reading For You!

A key component in Pennsalt's all-new Fosbond® Process is Actidip. Proper use of this extraordinary activating agent can cut consumption of zinc phosphating solution as much as 40% by reducing crystal size—and also assure a better, smoother organic finish. Because the phosphatizing bath is the major expense item in a paint-bond process, the reduced consumption possible with a Fosbond cycle including Actidip therefore can save thousands of dollars annually for any major user!

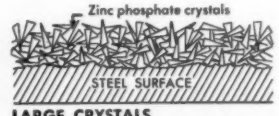
In many other ways, the Fosbond Process is just as noteworthy. It consists of a complete series of products and operations for *trouble-free* phosphatizing of metal prior to organic finishing. Fosbond locks finish to metal, and provides lifetime corrosion resistance. To get the process working smoothly in your plant *and to keep it that way*, Pennsalt offers the services of metal processing specialists.

Like To See Test Panels? Prove to yourself just how good Fosbond is! We'll send you test panels, or Fosbond chemicals with which you can make your own. Tell us, 1) type metal to be coated, 2) phosphate coating now used, 3) method of application, 4) organic finish used, 5) conditions finish must meet. Or, tell us about your phosphatizing operation, and we'll answer your questions as specifically as possible.

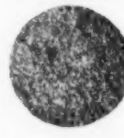
Better yet, say the word and we'll have one of our men tell you about Fosbond in person! Write: Customer Service Dept., Pennsylvania Salt Manufacturing Company, 526 Widener Bldg., Philadelphia 7, Pa.




(untouched)
photomicrographs



Zinc phosphate crystals
STEEL SURFACE
LARGE CRYSTALS
on non-activated surface





Zinc phosphate crystals—Actidip "seeds"
STEEL SURFACE
SMALL, DENSE CRYSTALS
on Actidip-activated surface

How Actidip Works

Zinc phosphate crystals begin "growing" on steel from a starting point or nucleus. On a non-activated surface, growth is uncontrolled. Result: large crystals, high consumption of phosphatizing solution, irregular surface requiring more paint to cover.

Pennsalt Actidip "seeds" the surface with thousands of nuclei. Result: a controlled, more uniform, smaller crystal structure; a minimum of solution consumed to fully coat surface (up to 40% less); equal or better corrosion resistance with lighter coating due to more complete surface coverage; less paint to cover—or a smoother finish with same amount of paint.

The use of Actidip on certain steel surfaces which won't take an adherent phosphate coating has actually made it feasible to produce good coatings on these surfaces.

Actidip is applied by spray or immersion methods—by itself or compounded with a Pennsalt Cleaner. Actidip baths have long life and require no chemical control as the action of Actidip is a physical phenomenon and involves no chemical reaction. For best results, Actidip should be used in a Pennsalt-designed Fosbond cycle.



Fosbond has qualified for the Good Housekeeping Guaranty Seal, which is part of the colorful Fosbond emblem. Authorized Fosbond users may include this nationally-advised emblem in their sales literature, product tags, etc., thus benefit from a proved merchandising device.



*A better start
for your finish*

**Pennsalt
Chemicals**

Component manufacturing can be streamlined too

producing dual-pane sealed windows for ranges in a plant designed
for straight line production

illustrated with finishfotos

by *Herbert Mills* •

PRESIDENT, MILLS PRODUCTS, INC., WALLED LAKE, MICHIGAN;
AS TOLD TO A FINISH EDITOR



A new plant at Walled Lake, Michigan, houses the fabrication and assembly operations for "Perma-View" windows for domestic range ovens, the product of Mills Products, Inc. Within the past few years the "visible baking" feature has become one of the most popular features of modern ranges

according to leading range manufacturers.

In a tour of the new Mills plant, the tool room seems a logical place to start. This section of the plant is small in area, but houses all necessary equipment for building the production tools and dies, and to provide for their maintenance.

Coil stock used

Both stainless and chrome plated

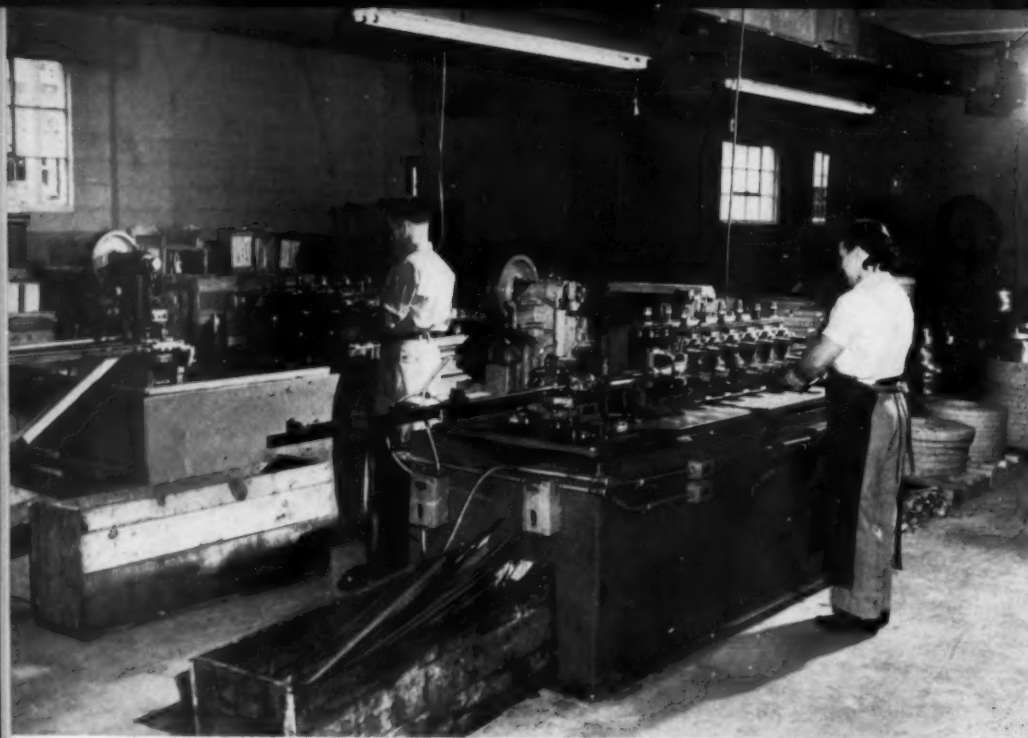
steel are used for the window trim, and both are purchased in coils. Pre-finished cold rolled steel (black finish) is used for outer frames.

Three 6-spindle roll formers are employed to fabricate the reveal mouldings, spacers and outer frames.

Roll former No. 1 produces the stainless and preplated steel reveal mouldings. No. 2 fabricates all widths of chrome steel spacers required for various width windows. No. 3 fabri-

Tool room showing facilities for designing and building production dies, tools, jigs, and fixtures. Maintenance and repair activities at this point insure continuous production of windows.





Roll-forming the metal which separate the two glass in range windows. Pre chrome steel is supplied inter-leaved with paper. Steel from stock reel to a series of ing rolls, through the flying off which is actuated by the moving against a micro. The shears are traversed by the movement of the rolled steel, it feeds from the rolls. A with guide rollers support stock until the piece is cut. This system of cutoff is accurate $\pm .005$ inches.

cates the black outer frame in all sizes.

Stock for the outer frames is sheared to length, and then to the narrow widths required, on a conventional shear.

Six-set die used in fabricating outer frame

A 20 and a 35-ton punch press are each used to blank the outer frame

complete in one operation. A six-set die is used for each frame. Nine different sets are required for production of the various units. All die sets are adjustable for various lengths. (Window sizes vary from 6" x 10" to 10" x 18" — glass size.)

Roll-forming the spacers

Following the rolling operation on the spacers (No. 2 roll), an operator

using two small punch presses in tandem, wired to operate singly or simultaneously through a single control, offsets one end and embosses the "Perma-View" name in a single operation.

Parts are transported to the fabricating conveyor line where the first operation is the forming of the reveal moulding on air benders. Here spacers are also fed to the benders as

Blanking operation for outer frame. A six-set die is used, with die sets adjustable for various lengths.

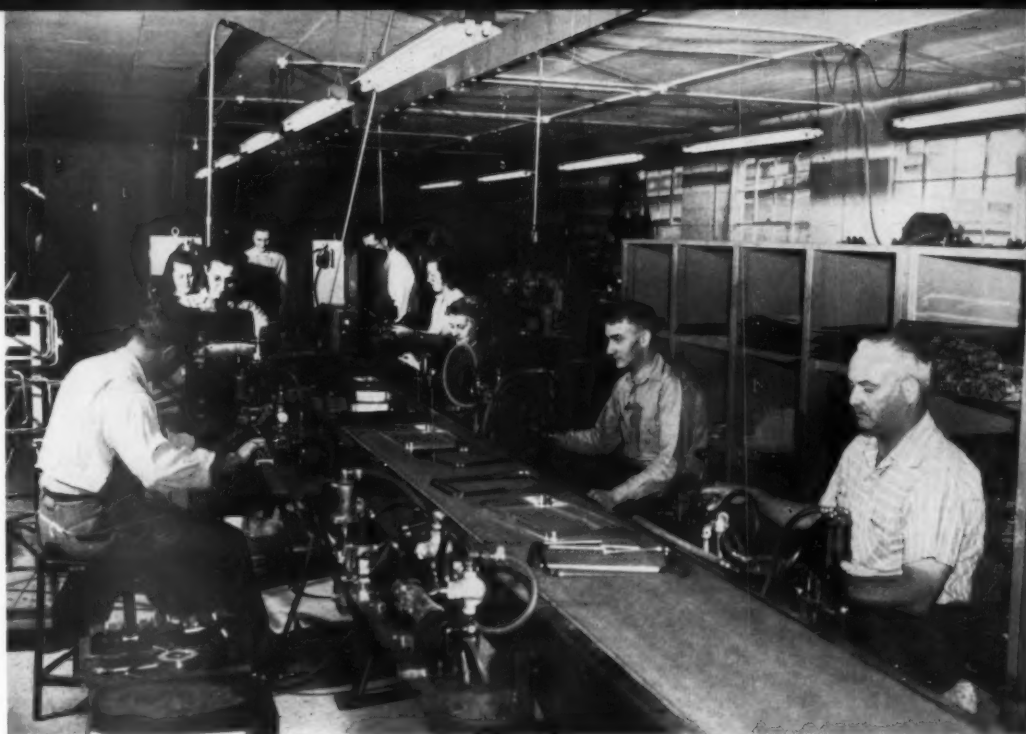


One operator performs two operations. Bench press at the same time the one offsets the end for mating to opposite end when strip is formed into box frame.



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multi-phase fabrication along a conveyor. Parts begin in the ground and are progressively bent down the line. Nearest the flying shears are the bending to form the spacers (spacers on the left, reveal micro-welding on the right). The frames are then butt welded and spot welded, in sequence, prior to inspection. The parts are racked off conveyor and transferred to the assembly conveyor.



straight channel and are formed into frames in a series of bends.

Welding operations

The parts are returned to the belt conveyor and are moved to the next station where they are worked from one or both sides of the conveyor. Operations of butt and spot welding follow progressively along the conveyor until the last station, where

they are inspected. The parts (both reveal and spacers) are then transported to the assembly conveyor.

Straight line assembly

Two parallel belt conveyors are employed to continue the assembly of the parts. The first operation on the loading end of the conveyor is the glass inspection, partial washing and placing on the assembly con-

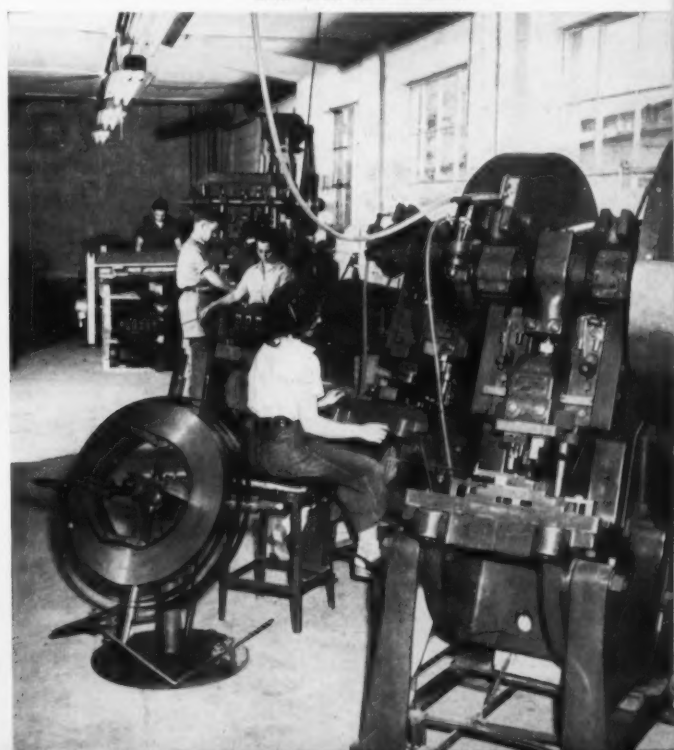
veyor. The next operation is the finish cleaning and placing the spacer in between two pieces of washed glass, making a glass-spacer-glass sandwich which rides down to the conveyor to the next station where operators add the inside reveal moulding to which they have attached a rope of asbestos.

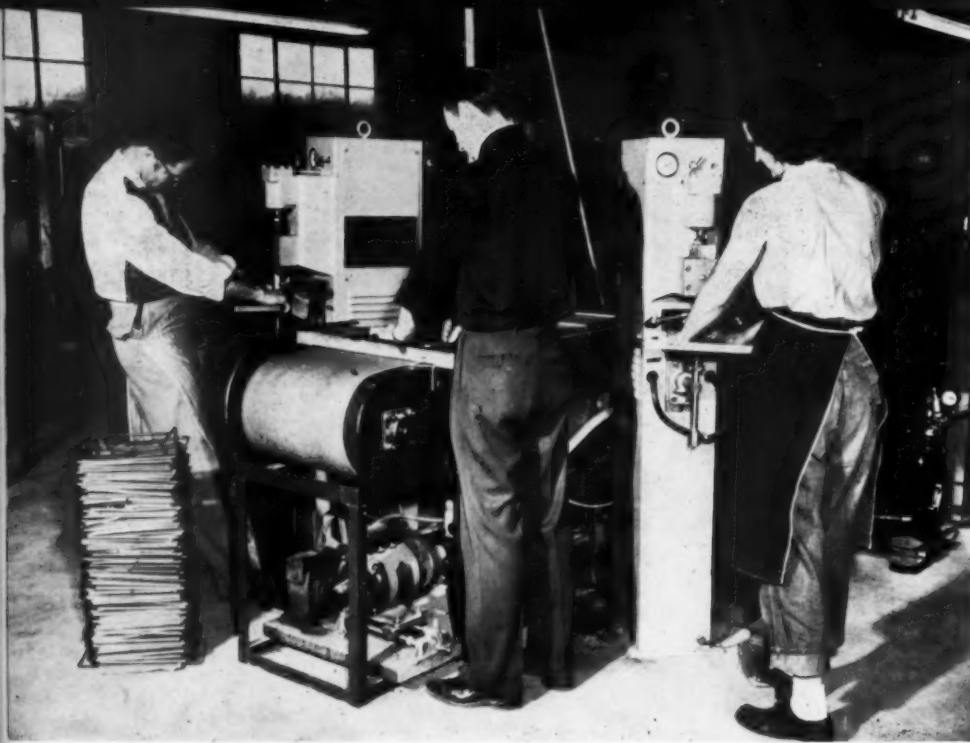
The glass is given a final polishing before assembly. →

horizontal notching and blanking punch press designed to move horizontally against the sheet steel stock which is inserted vertically through a slot too narrow to admit fingers in danger zone.



Section of fabricating area. In right foreground are two punch presses; beyond is a horizontal punch press, a vertical press, and then two shears.





Unloading end of the fabricating conveyor showing the final spot welding, inspection and stacking operations.

NOTE

Additional packaging and handling operations will be shown in the Safe Transit section of the August issue of finish.

The final assembly is accomplished in special jigs which position the reveal mouldings, the two glass panels, and the spacer unit. The outer frame is then wrapped around the complete assembly, compressing the glass against the spacer and seal.

**Packed in cartons
for assembly line use**

Assembly completed, the parts are

returned to the conveyor, are inspected and then advance to the packing station. They are packed either ten to a small carton, or two hundred to a large carton. The small cartons are loaded from 12 to 20 on a pallet depending upon the size of the windows, while the large cartons are loaded two to a pallet (400 windows). The boxes are secured with steel strapping and transferred to the ship-

ping room. The transfer is either by a combination manual-electric transporter, or by a powered lift truck.

Shipment by truck

Shipping is by truck to range manufacturers, where the windows are ready for assembly line use to fulfill the motto of the component manufacturer, "Out of the carton — into the door."

Twin assembly lines. In the foreground the glass is inspected, partially washed and placed on belt conveyor. After washing is completed, parts pass on down for final assembly operations.



Palletized finished windows ready for transfer to the shipping room. The operator at the right metal stitches the boxes are to receive completed windows.



EFFICIENT Tooling

YOUR KEY TO

- simplified manufacturing operations
- increased stamping production
- lower costs—higher quality



Shown above—the assembly of various tools for the production of refrigerator and other parts.



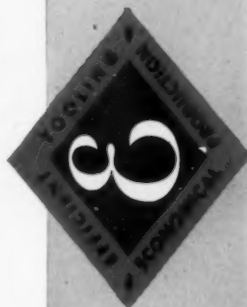
Milling a large die shoe 50" x 84" on a 5-spindle Giddings & Lewis Horizontal Boring Mill—especially equipped with a lead screw for thread chasing, and a duplicator for contour milling.

EFFICIENT designs and builds Dies, Tools, Jigs, Fixtures, Special Machines

Here's experience, skill and tooling know-how you can depend on. If you have "tough" stamping problems let us suggest an ingenious solution. Whether your tooling requirements are large, small, simple or complex, we can build dies that will save you time, trouble and expense in your production.

The EFFICIENT organization has the men, machines and large modern plant to serve you well. Our complete equipment includes tryout presses up to 300 tons capacity. Sample parts are delivered for your approval before dies are shipped.

EFFICIENT engineers will be glad to consult with you, work with you, or furnish quotations. Write or phone for complete information.



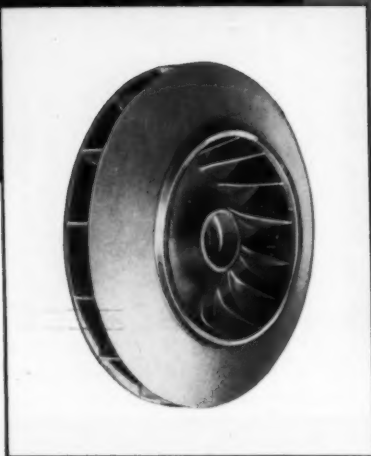
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A typical Acme casting for a defense product. Fin sections have a wall thickness of $\frac{3}{16}$ ".



Deep fat fryer casting including rod-type heating elements cast in as a complete unit. Acme has produced hundreds of thousands of these units.

Acme of Chicago offers a complete engineering service with over 33 years of engineering and foundry experience back of this service.

Better light metal engineering service may mean the difference between success and failure in using light metal castings.

Acme of Chicago also offers a complete casting service including aluminum alloy permanent mold and semi-permanent mold castings and aluminum and magnesium alloy sand castings. We are interested in special castings too, including castings with steel inserts and castings with heating elements or tubing cast in as a complete unit. We also offer aluminum and magnesium heat treated and aged castings to meet military specifications.

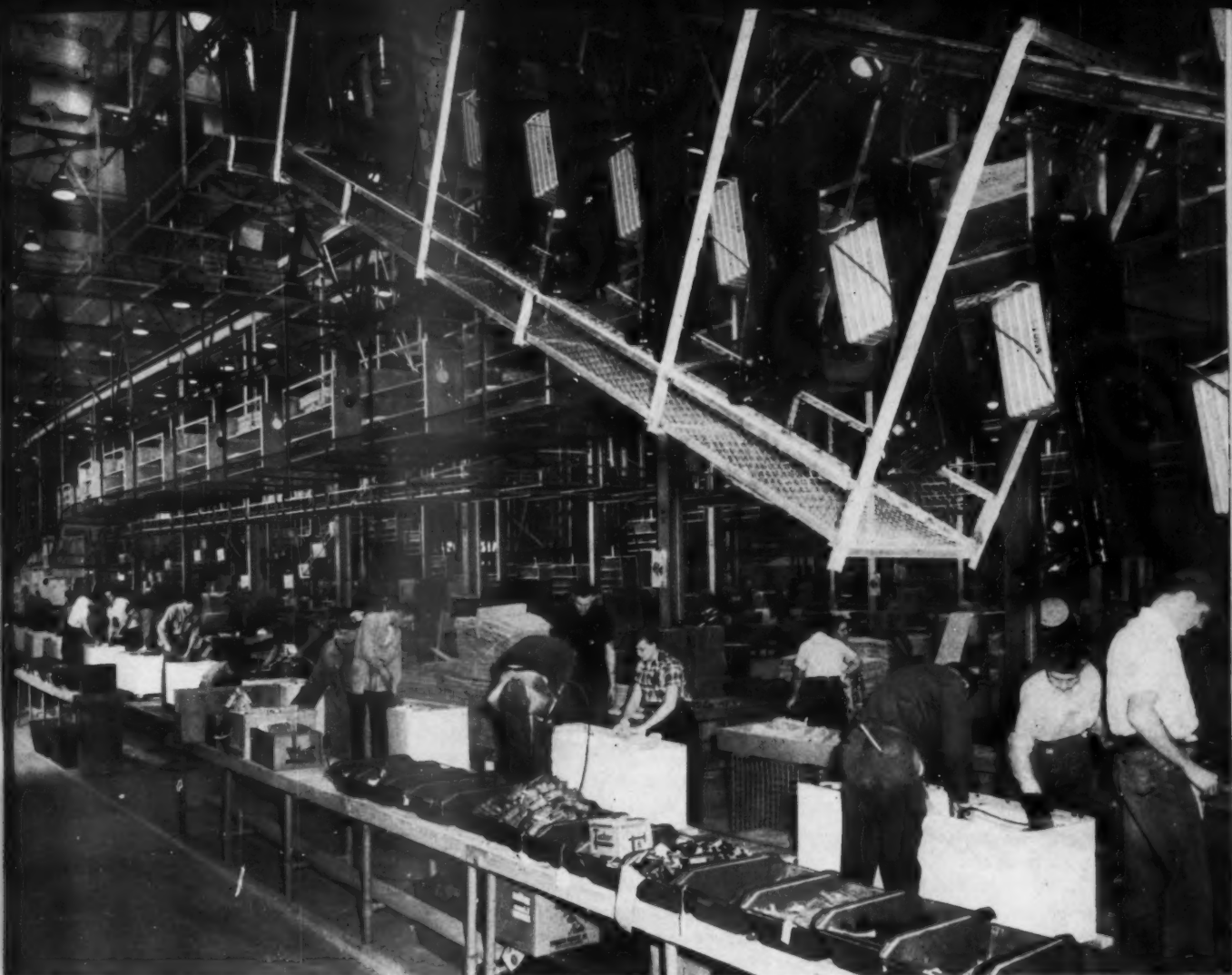
When you need engineering and casting service for better light metal castings call Acme of Chicago.

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JULY • 1954 finish



Refrigerator assembly operations at Westinghouse

all components feed to final assembly lines which are designed for ultimate production of 4,000 major appliances per day

(third in a series)

IN two preceding articles the fabrication, metal preparation and finishing operations were described as carried out in the new Westinghouse 2,000,000 sq. ft. appliance plant at Columbus, Ohio.

This article will present the pertinent details of final assembly, with some sub-assembly operations included.

finish JULY • 1954

The initial step in the assembly of the refrigerating unit is to hook a condenser to the overhead conveyor. From that instant the build-up is rapid; clips are assembled to the condenser to hold the drier, heat exchanger and cable in position; the discharge tube and heat exchanger are attached to the condenser; the evaporator mounting brackets are as-

sembled and the evaporator attached; then the discharge tube is brazed to condenser and suction tube to evaporator. The assembly is then dehydrated in an overhead oven at 275° F. for 35 minutes.

When the assembly returns from the oven, it is purged with dry air, the capillary tube is welded to the evaporator, and a drier that has been



The first assembly operation is to seal the welded seam with solder. This is being done by the man on the right of center. The cabinet is then tipped over on its back and glass wool insulation is packed into it. Note overhead conveyors in background: the lower one brings insulation material and accessories to the assembly line; the upper one, the refrigerating units.

dehydrated in a vacuum oven at 410° F. for 3 hours is welded to the capillary tube and the evaporator. The compressor is mounted on springs, the compressor mounting bolts secured, and the discharge tube welded to compressor. The assembly is given an air flow test to insure there is no clogging.

The compressor charging tube is cut off, an extension brazed on, the suction tube welded to compressor, and the unit charged with dry air at 200 pounds per square inch and sealed. The unit is immersed in water tank to check for leaks, the air removed, oven dried to remove moisture and a "handsome valve" at-

tached. The unit is then evacuated for 31 minutes on a vacuum pump that pulls a vacuum of no more than 1,500 microns and it is charged with Freon refrigerant and oil by automatic equipment which rejects any unit not holding proper vacuum. The unit is sealed, passed through water tank to check for leaks, oven dried, and given an electronic leak detector test. Then the controls and thermostat are attached and the unit is balanced by adjusting compressor mounting springs and shaping all tubes. A test cord is attached, the unit inspected, and it is ready for a performance test.

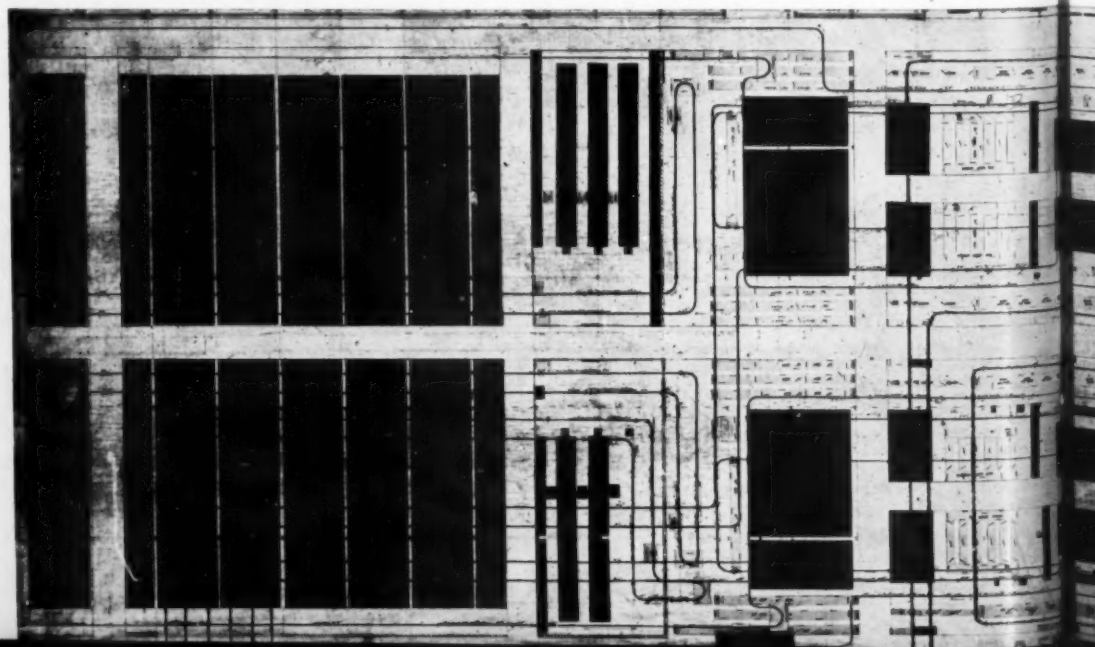
The first step of the performance

test is to start and run the unit on 140 volts for 4 seconds to lubricate the compressor. Second, the unit is checked for starting on 95 volts, run for one minute to see that it refrigerates, checked for grounds, run 45 minutes and checked for wattage, and then given complete check to insure proper overall operation. The unit then passes through a quiet room for the noise test; then another electronic leak test; and finally it receives a serial number plate and is ready for use on the main assembly line.

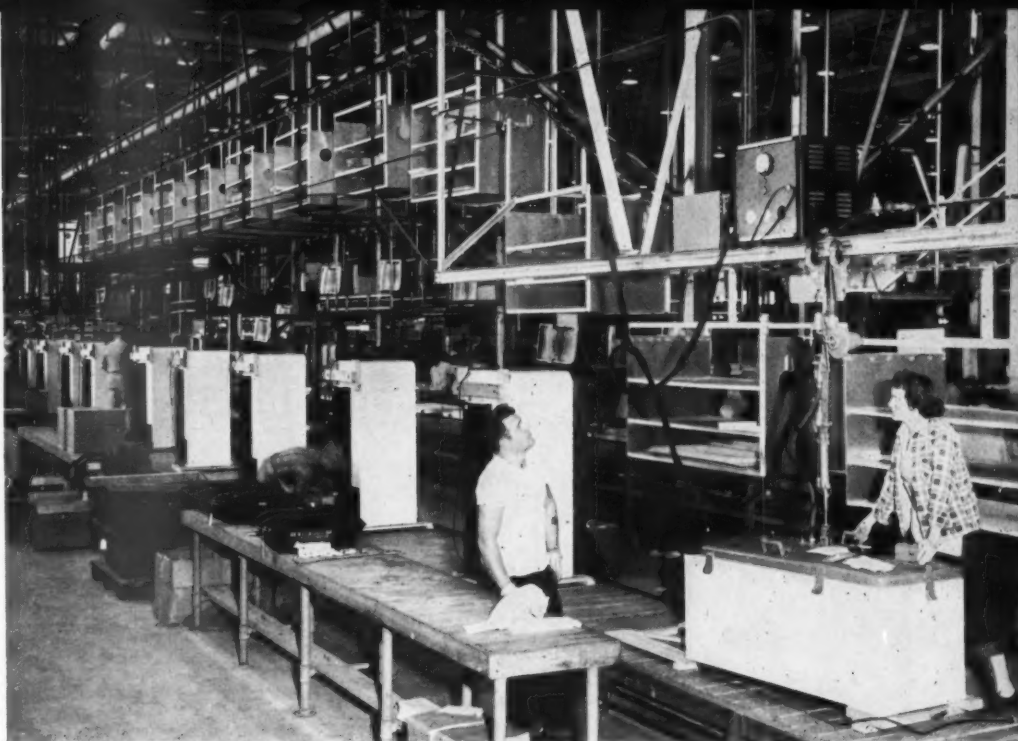
The temperature control

The temperature control is composed of three basic components: a

Section of storage area and start of four complete assembly lines, with flow from left to right. To the left of this section is additional storage for incoming materials.



to be sure that Westinghouse cabinets are properly sealed against air moisture, each one is given a leak test. A test panel that looks very much like a standard refrigerator door in traction is placed over the cabinet door opening. When properly sealed, a 4-inch water vacuum is pulled. This must be held to pass inspection. Refrigerator doors are also subject to the same type of test on another conveyor.



bellows, relay coil and contact arm, all housed in a frame. The assembly starts with the frame, fabricated in the press shop, to which is riveted a bearing support and rocker arms; then an adjusting screw and nut, bushing and switch lever nut are assembled to bearing support, and all bearing surfaces lubricated with graphite grease. The rocker arm is placed in frame and secured by main control screw; contact arms are assembled with flat and coil springs and placed in frame; then the relay coil is inserted with insulation between it and the frame.

The assembly is transferred to a run-in machine for a 5-minute run-

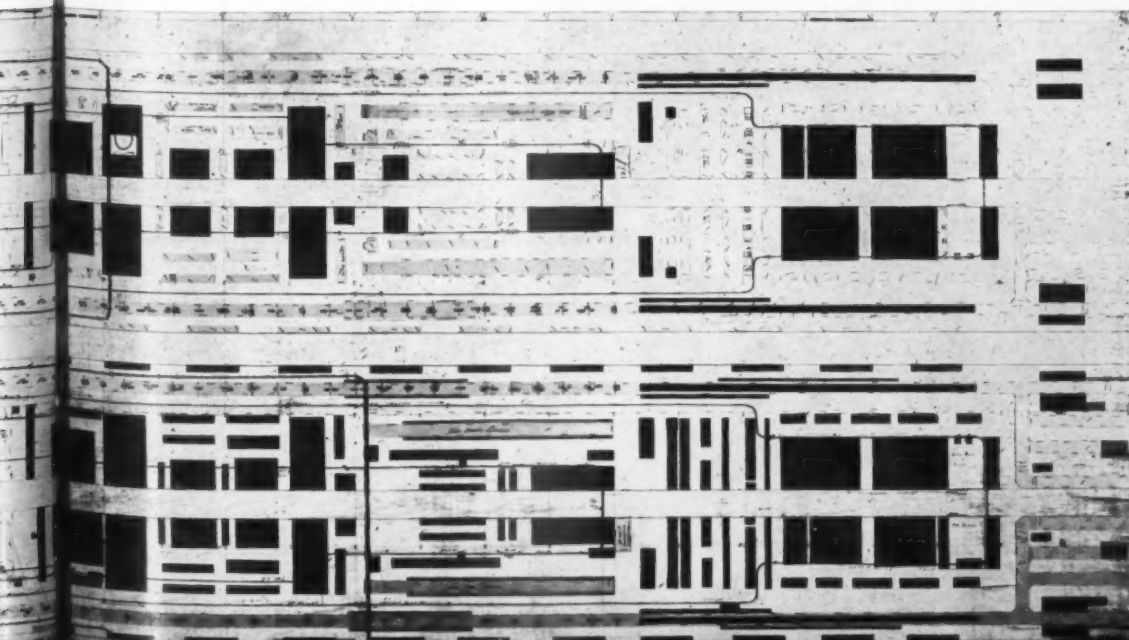
ning period during which the contact points receive a cycling of 60 cycles per minute and the working parts are worn in. Then the "pick-up" and "drop-out" of the starting coil is checked on a calibration board which automatically flashes lights to record the performance of the coil.

The bellows assembly is then locked into place in the frame and the completed assembly carried by overhead conveyor through an oven to a final calibration stand. Here the controls pass through a series of various temperature baths and final control settings are made based on readings automatically recorded on the calibration panel. The cable is as-

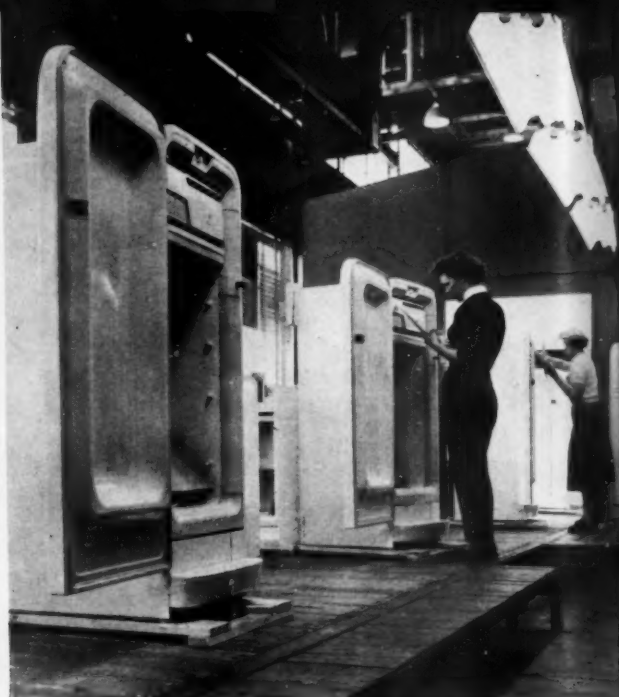
sembled to the starting relay, insulation and a cover are placed over the control, and it is ready for the refrigeration unit assembly line.

Cabinet assembly

Assembly of the refrigerator starts by placing a cabinet upright on a wooden frame that serves as a pallet during assembly and a base for the refrigerator shipping case. The cabinet and base are moved along a powered, floor conveyor that is the assembly line. The first actual assembly step is that of spraying the weld seams with a wax coating. The wax coat, applied over a plastic coat previously applied, is double assur-



Four main assembly lines and sub-assembly lines and door assembly line (shorter gray lines in center). Also shows feeder conveyors carrying basket storage of insulation and other components, unit delivery chain, and painted parts and enameled liners.



Left: Hanging the refrigerator door is simplified by the pre-clearance holes in the hinge to permit sufficient movement to permit proper alignment before the door is permanently secured with screws. Note special conveyor with overhead electrical connection.

Above: Here the completely assembled electrically-tested and calibrated refrigerators enter the "tunnel of light" for visual inspection prior to release to packaging and shipping department.

ance of an air-tight cabinet.

The cabinet is then tipped over on its back and glass wool insulation packed in place. An overhead conveyor that functions as a traveling storeroom brings the glass wool from

the receiving area. The food compartment liner is then placed in the cabinet and secured to the outer shell. As with the glass wool, the food compartment is brought to the assembly line from the porcelain enameling

area by means of an overhead conveyor.

The cabinet is then raised to an upright position and the refrigerating unit installed. Once again a conveyor is used to connect the refrigerating unit assembly area with the refrigerator assembly line. With the unit in place, glass wool is packed into the bottom of the cabinet to deaden the noise of the compressor and the evaporator tube openings in the cabinet are sealed with a mastic. Then finally, the door frame trim mouldings are attached and the refrigerating unit control and the food compartment light switch attached to the trim and the cabinet is again tipped over on its back.

Here an operator checks for leaks in refrigerating units. The units have been leak-tested with a charge of 200 lbs. of dry air, then evacuated and charged with Freon and oil under 200 lbs. pressure prior to passing through this water leak test tank which is maintained at 130°F. Even this is not a final leak test—the charged unit receives two additional electronic leak detection tests before given final approval.

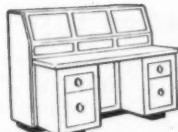


Next comes the toughest test of all — the cabinet leak test. A test panel that looks like a refrigerator door in traction is placed over the door opening of the cabinet and a vacuum pulled on the box. The cabinet must hold a 4-inch vacuum pulled for a given period of time if it is to pass water muster for not less than 6 seconds. A light flashes to show the cabinet passed the test. *to Page 64 →*

FASTEST THING IN FASTENINGS®



SPEED NUTS® "build in" 30% savings on enclosure system



● Here's how the Elgin Metalformers Corporation, Elgin, Illinois, reduced the total cost of its EMCOR control equipment enclosures by 30%!

The basic EMCOR console requires 276 mounting holes for various assembly arrangements. Formerly, each hole was tapped . . . tight tolerances and paint clogging presented a costly problem. Now, the use of 40 "J" Type SPEED NUTS makes it unnecessary to tap the holes. SPEED NUTS provide the right amount of float, eliminate the problem of paint clogging, and furnish an attachment $3\frac{1}{2}$ times stronger than the former fastening method. And they can be easily moved from hole to hole, wherever attachments are to be made.

In other applications, SPEED NUTS replaced 48 weld-type fasteners to help gain a substantial saving in assembly space as well as the over-all saving in production costs!

Ask your Tinnerman representative for data on better, more economical fastening methods for your own products!



"J" TYPE SPEED NUTS

These standard Tinnerman fasteners snap over panel edges by hand. They are self-retaining in center hole locations providing quick, easy fastenings even in blind assemblies. A full range of panel thicknesses and screw sizes are available to meet your particular requirements.

Write today for your "SPEED NUT Savings Stories" booklet of typical Tinnerman savings to industry: TINNERMAN PRODUCTS, INC., Box 6688, Dept. 12, Cleveland 1, Ohio.

In Canada: Dominion Fasteners Ltd., Hamilton, Ontario. In Great Britain: Simmonds Aerocessories, Limited, Treforest, Wales. In France: Aerocessaires Simmonds. S. A.—7 rue Henri Barbusse, Levallois (Seine).





Here's Enduro Stainless Steel Quality for only 9% more cost

That's the experience of the Guardian Locker Division of The Flxible Company, Millersburg, Ohio. They're making and selling public rental lockers. They use ENDURO Stainless Steel for all exterior sections, and for interior bottom sections—at the place where wear is heaviest. They're making coin receivers and lock parts of ENDURO, too.

Cost is only 9% more than it would be for the same locker made of plain carbon steel, painted. Revenue increases from the stainless steel lockers are reported to range from 15% to 40%.

Women particularly are attracted by the bright, clean-looking ENDURO finish. It has a psychological "sell". And, ENDURO naturally is easier to maintain. Easy to keep clean and bright look-

ing. ENDURO will not tarnish. It resists abrasion and denting. It has no applied surface to chip, peel, or wear away. It lasts long. It is easy to fabricate.

Here's more proof that ENDURO brightwork sells. That it appeals to everyone. It can do the same for your products. Republic metallurgists will help you apply ENDURO's "bonus benefits" to step up interest and sales power . . . efficiently and economically. Just write:

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Alloy Steel Division • Massillon, Ohio

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Export Department: Chrysler Building, New York 17, N. Y.

REPUBLIC
ENDURO STAINLESS STEEL





CLEANING SPECIALISTS

give you a "brighter" outlook on life.

It's amazing how pleasant the view can be after one of these steel-nerved, sure-footed, alert Cleaning Specialists have done their job.

Northwest's Metal Cleaning Specialists are "alert" to your problems when it comes to giving your products a "brighter" outlook. Day in—day out, Northwest carries on the constant search for better, lower cost, analytically-correct cleaners to give you dependable, good looking, permanent finishes.

From Northwest's years of experience in developing job-adjusted cleaners for your specific needs have come such processes as the LO-HI pH—for cleaning prior to plating, painting or vitreous enameling; ALKALUME—for preparing aluminum for finishing and spot welding; INTERLOX—for phosphate coating; SPRA-LUBE—to control over-spray of "today's" paints in water wash paint booths; PAINT STRIPPERS—specific to your needs; SUPER-DRAW & FLUID FILM—for drawing metals.

Northwest's production-tested chemicals and "Right-the-first-time" recommendations will save you money. Northwest Service is as close as your phone.

Remember —YOUR
COST PER FINISHED
ARTICLE IS THE TRUE
COST OF YOUR CLEANER



NORTHWEST CHEMICAL CO.

9310 ROSELAWN

DETROIT 4, MICH.

pioneers in pH cleaning control

serving you since '32





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TO MAKE STAMPINGS
LIKE THESE
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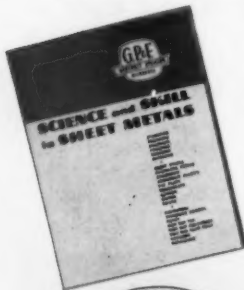
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1605 W. St. Paul Avenue, Milwaukee 1, Wisconsin





Sunbeam's new "Frypan" is said to provide Mrs. Home-maker with perfect top-of-the-stove cooking temperatures, just like she gets perfect baking and cooking temperatures in the oven.

Controlled heat for the frying pan

Sunbeam's new product features a water-sealed heating unit

SUNBEAM Corporation, of Chicago, has just introduced to the market a new electrical appliance which the company believes is "the answer to every modern maiden's prayers."

Called the "Frypan", it features automatic controlled heat and a water-sealed heating unit embedded in the bottom of the pan.

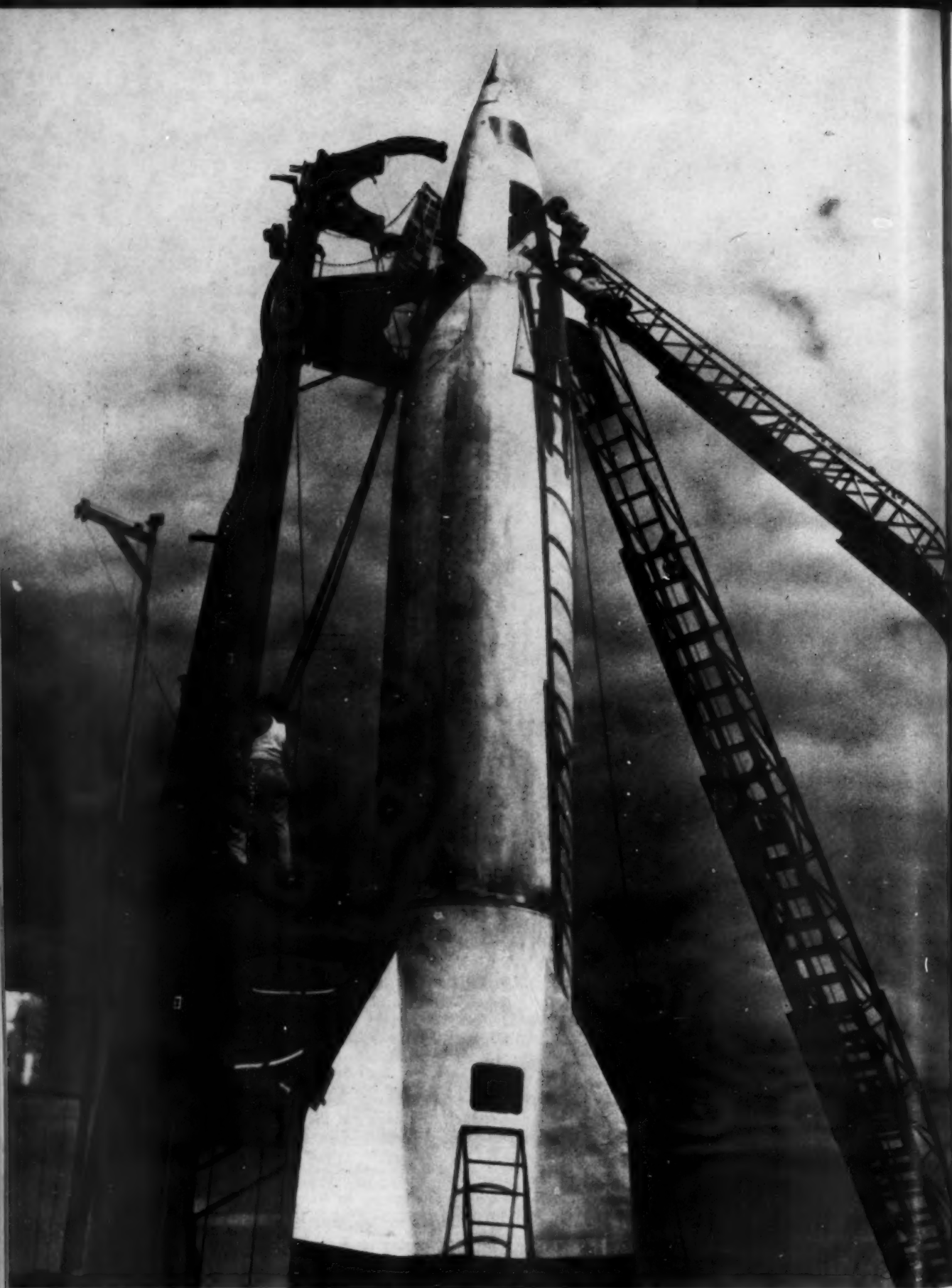
The new appliance is said to provide the user the perfect temperatures for cooking on top of the range, just like she gets perfect baking and cooking temperatures in the oven. Milady just sets the dial to the correct "controlled heat", and the food is cooked "to perfection automatically."

Recommended frying temperatures are listed on a convenient "fry-guide."

The shortening is said to be always at the right temperature because of the unit's thermostatic control.

The water-sealed heating unit permits the immersion of the entire pan in water (up to the control knob) for quick and easy washing.

Frypan's square design also permits the user to cook 20% more food than in a round pan.



Seething short-life rocket parts, which handle temperatures up to 5000° F., are top prospects for cermet coatings.

Cermets and ceramic-coated metals team up with jet propulsion

by Alexander Pechman • CERAMIC ENGINEER, DEVELOPMENT LABORATORIES
RYAN AERONAUTICAL CO., SAN DIEGO, CALIFORNIA



Through continuing research, the Ryan development laboratory is gaining increased knowledge about high temperature ceramic coatings. During the past four years, these thin refractory coatings—0.001 in. thick—have been successfully applied to thousands of components for jet, piston and rocket engines. As the largest producer of such components, Ryan has amassed a wealth of experience in this specialized field.

Recently, the laboratory has accomplished several techniques such as flame-spraying refractory materials, ceramic coating large, thin-walled jet structures and welding through ceramic coatings.

Flame spraying progress

Still in the research phase, flame-spraying is a spectacular operation in which powdered refractories can be momentarily liquefied and sprayed on metal surfaces. For this work, a spray gun is used which is designed for metal spray-welding purposes. Laboratory technicians have converted it to the application of cermets—or combination metal-ceramic powders (see December, 1953, finish).

Ryan has successfully flame-sprayed the promising cermet, nickel-magnesia, as a coating on stainless steel, Inconel and other high temperature alloys. This cermet is made from nickel and magnesium oxide which have been combined, sintered, and ground to powder. It has demonstrated

its capacity as a coating to withstand temperatures up to 3500°F. for limited periods.

With a very high fusing temperature, nickel-magnesia cannot be applied to metal structures by ordinary furnace fusing methods. Ordinary furnaces will not provide temperatures above 2100°F. Especially insulated furnaces are expensive and difficult to design and operate for handling sizable parts. Another drawback is that jet engine alloys cannot stand the necessary fusing temperatures without losing strength and suffering other undesirable physical changes.

Flame-spraying circumvents these obstacles. The technique heats the cermet to the fusing point without bringing the base metal, to which it is applied, close to dangerously high temperatures. It avoids the use of expensive furnace equipment.

5500°F. temperature provides "fiery paint"

The nickel-magnesia powder is placed in a metal container attached to the flame-spraying gun. Nitrogen gas forces the powder through a tube and into the hot torch nozzle. Oxygen and acetylene are also piped to this nozzle where they burn with a temperature of 5500°F. As the cermet flows through the hot flames it liquefies and is sprayed on the metal surface, like a fiery paint. Leaving the flame area and impinging upon the cooler metal, the cermet cools, solidifies and adheres in a refractory coating which can be applied to prescribed thickness. The base metal is

not heated to temperatures which could cause warping or buckling.

The flame-spraying gun is light and dependable. Four valves control the flows of oxygen, acetylene, cermet powder and nitrogen. Care must be taken to obtain uniformity in coating thickness. The coating has been applied in various thicknesses ranging from less than .001" to .020".

Practical application possibilities for cermet coatings

Flame-spraying cermets, as coatings, may open new vistas of usage for after-burner liners, rocket parts and other similar high temperature components. These parts are called upon to withstand terrific heat and high velocity impingement of corrosive gases, but are not required to have high structural strengths. Their service life may be materially extended by successfully applied cermet coatings.

For use with high strength components—such as combustion chambers, transition liners and exhaust systems—cermet coatings may be the means for extending operating temperatures by as much as 150°F. Present ceramic coatings are limited to temperatures around 1800°F. Above 2000°F., cermets will probably not be used to coat these parts because the metals themselves will not retain sufficient structural strength to perform their functions.

The emergence of jet-type power plants has accelerated the development of high temperature ceramics. Essentially, these engines depend upon extreme temperature differentials in



Ryan-Cameo have developed special cleaning, spraying and fusing techniques to ceramic-coat large, thin-walled, corrugated structures for high temperature applications.

converting heat energy into work. Consequently, they have created a tremendous demand for materials which will withstand elevated temperature, vibration and thermal shock.

Ingeniously, metals have been formulated to perform these tortuous tasks. But, many metallurgists question the capacity of unprotected metals to meet the need at temperatures beyond those now experienced — or above 1800°F. This point seems to be about the limit of endurance for the known metals which are suitable for the applications.

Ceramics offer the best promise of a solution. They have no melting point but gradually deform under stress at temperatures much higher than metals can sustain in service. Since they are saturated oxides of metals, ceramics are extremely resistant to oxidation — a shortcoming of metals. However, ceramics alone do not possess the structural strength and mechanical shock resistance of metals. Obvious answer: a combination of metals and ceramics. Metal-ceramic combinations are easier to imagine than to obtain.



New flame-spraying technique is used by the author to coat stainless steel parts with powdered cermet which are applied like "fiery paint." Cermet can be liquefied and applied by blowing through 5500° oxy-acetylene flames.

Review of ceramic coating progress

The first successful ceramic coatings for high temperature steels were developed by the National Bureau of Standards in 1947, after six years of research. This new ceramic possessed a coefficient of thermal expansion that closely matched the stainless steels. Consequently, it adhered to them over a wide range of temperatures. The Ryan development laboratory placed these ceramics on test to validate their usefulness for actual service with high temperature exhaust systems for aircraft engines.

In conjunction with Boeing Airplane Company and Pan American World Airways, a series of specially



Flame temperatures 3500°F. in these oxy-burners for General Electric J-47 jet engines. Oxy-burners consume less fuel than the jet engines they serve, and ceramic coatings may extend their life.

made exhaust system components were placed in service with Boeing Stratocruisers in trans-Pacific flights. These exhaust "headers" were made from a variety of metals including stainless steels, Inconel X, Hastelloy C, Haynes Stellite N-155 and Armco 17-14 Cu-Mo. Some were coated with National Bureau of Standards ceramics and others were left uncoated. At intervals of approximately 800 hours, the test headers were removed and sent to the Ryan development laboratory where they were carefully analyzed; then, they were returned to service. At this time, many of these components have attained a service test life of more than 3,000 hours and the program has become the most comprehensive test project of its type.

Metallographic examinations of the test headers have shown that the National Bureau of Standards ceramic coatings, of which A-418 is the most

recent type, have retarded the occurrence of oxidation, carbon absorption and corrosion attack usually experienced in the application. As a result of this protective feature, the exhaust system components have had their service life extended from 50 to 100 percent.

In conjunction with California Metal Enameling, Ryan produces ceramic coated aircraft exhaust equipment. Included in these applications are components for Boeing 377 Stratocruisers and C-97 Stratofreighters, Convair 240 and 340 airliners and Fairchild C-119 flying boxcars. Also, thousands of ceramic coated combustion chambers have been built for General Electric J-47 jet engines and Continental engine manifolds for General Patton Tanks.

Large, thin-walled jet engine after-burner liners are also being built. Made of stainless steel, these structures shield the walls of General Elec-

tric after-burners from the destructive effect of the flaming jet stream. They are exceedingly thin-gauged and would not survive the torrid after-burner atmosphere if they were not coated on both sides with ceramic coatings. To provide extra strength and insulation properties, the sections are louvered and corrugated.

Exceptional methods had to be developed in order to obtain uniform coatings on the corrugated surfaces. Also, special cleaning methods had to be developed because standard sandblasting methods could not be used, due to the thin gauges involved. Another technique was employed to prevent warpage of the thin sections in the furnace fusing process. Designed by General Electric engineers, the after-burner liners are successfully extending after-burner life by maintaining a relatively cool boundary layer of gas against the after-

to Page 64 →

bursting out at 1200 miles per hour, the uncaged gases roar from the jet engines of a Douglas F3D2 Skynight. "Hot parts" for the jet engines have been successfully coated with high temperature ceramics.





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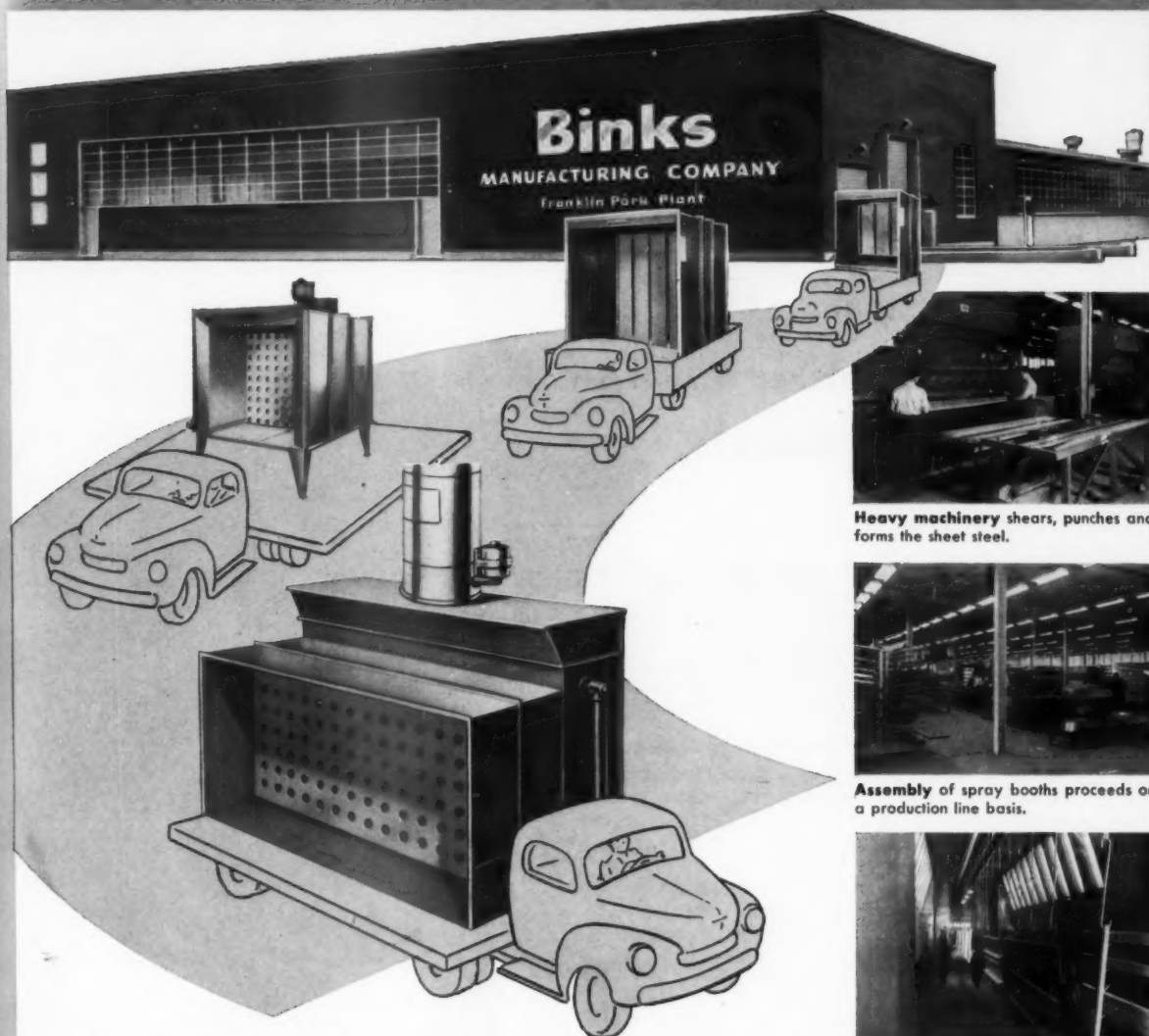
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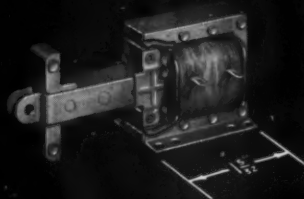
This gives you some idea of the tremendous possibilities of the Soreng Standard Solenoid. For more complete information, power curves, dimensions and electrical characteristics, write for Bulletin CF-124.

Bulletin CF-124
Drawings, Power Curves, Technical Data

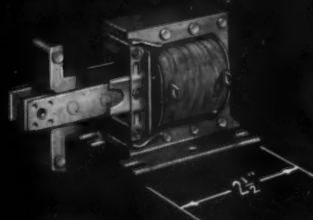


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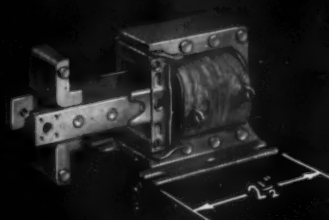
Type 12200



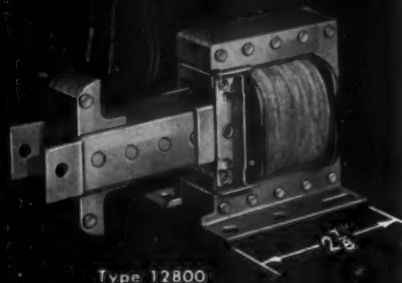
Type 12100



Type 12130



Type 12800





A section of the conference meeting room. Registrations for the meeting, held in Chicago, totalled a record 218 persons.

Appliance technical conference

record attendance at "performance testing and standardization" conference sponsored by AIEE Committee on Technical and Commercial Applications

illustrated with finishfotos

THE 5th annual Appliance Technical Conference, held at the Morrison Hotel, Chicago, May 17-19, drew a record attendance of appliance engineers and representatives of testing laboratories and component manufacturers. The meeting was sponsored by the Sub-Committee on Domestic Appliances of the American Institute of Electrical Engineers' Committee on Technical and Commercial Applications.

Chairman of the conference committee was R. W. Fauquet, of Sears, Roebuck & Co. Program arrangements were handled by T. T. Woodson, of General Electric. T. H. David, of Hotpoint Co., had charge of publicity.

The fact that this year's conference was expanded to include three full days of technical sessions indicates that the conference has come of age as one of the important technical meetings of the appliance industry. Previous conferences consisted of from one to two days of technical sessions.

The first session was presided over

by T. C. Johnson, of General Electric Co., chairman of the Committee on Domestic and Commercial Applications. The address of welcome was presented by Prof. R. W. Jones, of Northwestern University, chairman of the Chicago Section of AIEE.

Engineering for performance

John C. Sharp, president of Hotpoint Co., opened the conference with an address on "Appliance Engineering for Performance." He stated that despite their tremendous contributions aimed at raising the American standard of living, appliance engineers of today are beset with hundreds of problems and pressures in their daily quest toward perfection.

"It is my personal belief", he asserted, "that appliance engineering is the most difficult of all assignments. The customer is non-scientific and has no desire to become so. The customer depends upon a good name and a business grows on that basis."

Four requisites for performance testing were cited by Sharp as follows: (1) tests must obtain results in a

reasonable time, (2) tests must measure the property in question in terms related to actual use, (3) the test should be concerned only with a requirement of actual use, and (4) the standard must be chosen on the basis of a required minimum.

"The appliance engineer," he added, "must know when a product is far enough along to justify producing it and selling it. It can never be half-perfect until he knows what customers are going to do to it. Then he can set up his performance tests and standards for real improvement and move toward perfection."

Appliance problems from the customers' viewpoint

One of the most interesting sessions was devoted to a symposium on "Customers' Viewpoint of Present Day Appliances". T. H. Cline, of Newark Stove Co., presided at the symposium.

Miss Bernice Strawn, home equipment editor, "Woman's Home Companion," led off with examples of both general and specific problems facing the consumer. The problems

were drawn from actual experiences reported by the magazine's editorial staff.

Answers to the problems were given in part by a "panel of experts", consisting of Carl V. Krichton, Toastmaster; Allen Bate, Oster; Walter R. Weeks, General Electric; W. E. Mahaffay, Whirlpool; H. A. Strickland, Hotpoint; and G. S. Hill, General Electric.

Some of the problems and wants of homemakers, as reported by Miss Strawn, included: portable appliances are too heavy . . . problem in storing small appliances with motors . . . need retractable cords on all appliances . . . want open-top dryers as companion pieces for open-top automatic washers . . . range timers still too complicated . . . want built-in refrigerators . . . appliance dials are located in place where they can get hit and change settings . . . steam irons need more steam as they "don't really remove wrinkles" . . . need basic instructions of appliance itself . . . so many instructions needed in washing certain fabrics that automatic washer "ceases to be automatic" . . . dryer baffles don't tumble and dry clothes evenly . . . dishwashers don't do enough of a job . . . exterior temperatures of new ranges "seems higher to women" than formerly . . . electric casseroles too large for family of two . . . grilles flatten sandwiches too much . . . automatic electric percolators "don't have the flavor of non-electric coffee makers" . . . want portable electric kitchen appliances which can be immersed



T.C. Johnson, of G-E, chairman of the AIEE Committee on Domestic and Commercial Applications.

in water for washing without endangering the safety of the appliances for later use.

Miss Strawn's presentation of the "customers' viewpoint" was well-taken by the "panel of experts" who agreed in general that some of the suggested improvements were already "in the works", while in other cases varying building codes pose a problem for the manufacturers desirous of pleasing the public in various sections of the country.

It was also stated that some suggested improvements were not feasible because the final cost would be higher than the public would care to pay.

Practical tests for dryers

W. E. Duvall, of Sears, Roebuck & Co, told how his company conducts

laboratory performance tests on clothes dryers.

"The best method of predicting the useful life of an appliance is field testing. However, the laboratory must make some sort of intelligent estimate of this quantity. Yardsticks used at Sears include motors and solenoid temperature rise measurement, low voltage operation, and simulated life tests," stated Duvall.

The simulated life test involves cycling the machines almost continuously in order to determine its weak points. All life tests at Sears include an off period because it has been found that operation without a cooling-off period tends to obscure weaknesses which may be very real in actual service. Bearings are allowed to cool and lubricants to settle. "While a particular fan bearing and lubricant may show good results under continuous use, the cooling-off periods may reveal a lubrication weakness which would cause short life in the field," stated Duvall.

Electronic surface unit control

H. T. Thunander, of Westinghouse, described a new electronic surface unit control for a new electric range which his company is marketing under the slogan "Food Can't Burn."

In use, if the control knob is set to "warm" or "fry", and if the pan—or rather the temperature sensing element—is at a temperature above the line, there is no power to the surface unit. The power comes on as soon as the temperature drops below the line.

Panel on "customers' viewpoint"—left to right—T. H. Cline (presiding), Newark Stove; C. V. Krichton, Toastmaster; Allen Bate, Oster; W. R. Weeks, General Electric; W. E. Mahaffay, Whirlpool; H. A. Strickland, Hotpoint; G. S. Hill, G-E; Bernice Strawn, "Woman's Companion."



Thunander stated that the differential or temperature change required to turn on or off the power is very small—normally less than 1° F. The function is simple in the “warm” or “fry” zones, since there the control has just an ordinary thermostatic operation. “Warm low” is around 160° F., and the “fry” zone extends above 400° F.

The function in the “boil” zone is different, Thunander stated. “We bring the pan to boiling on full power, maintain boiling on reduced wattage input, and limit the temperature rise if the pan should boil dry.” He pointed out that this was done by shifting the control temperature setting from a point below boiling to a point above the boiling at a certain rate.

This shifting of the control temperature back and forth takes place continuously as long as the knob is set to the “boil” zone, Thunander pointed out, adding that the control temperature remains at the low level for a certain length of time and stays at the high level for the rest of the cycle.

“Consequently,” he said, “as long as the pan temperature is below 204° F., we have full power; between 204° and 235° (when the pan is boiling) we have reduced wattage, and over 235° we have no heat input. To complete the boiling operation, we just put the pan on the surface unit, turn the knob, and, when finished, turn off the knob. Everything in between is automatic.”

Correlating vacuum cleaner and motor design

A. B. Bradley, Jr., of Birtman Electric Co., told how his company planned to design “a completely new model (vacuum cleaner) without any limitations carried over from previous models in the line.”

It was decided to use a different method of handling the dirt-laden air-stream — by expanding the exhaust chamber in an axial direction rather than radial, permitting the use of a horizontal motor which would draw inlet air from the nozzle at the front of the machine and exhaust it into the

to Page 74 →



Major appliances panel—H. T. Thunander, Westinghouse; J. A. Flynn and L. C. Martin, General Electric; N. Cohn (presiding), Leeds & Northrup; Geo. S. Jones, Jr., Air-Conditioning & Refrigeration Institute; and E. J. Zimmer, Plumbing Testing Laboratories of the City of Chicago.

Standardization panel—R. W. Fauquet (presiding), Sears Roebuck; W. R. Milby, Detroit Edison; F. J. Schlink, Consumers' Research; H. C. Koenig, Electrical Testing Laboratories; and W. E. Duvall, Sears Roebuck.



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Components panel—T. T. Woodson (presiding), General Electric; Frank Kahn and R. C. Bryce, Philadelphia Electric; Frank Spath and Leonard Tulauskas, Mallory. D. G. Kimball, of General Electric, was also on the panel.

Small appliances panel—J. A. Deubel (presiding), Perfex; R. C. Holmes, General Electric; F. P. Stearns, Metals & Controls; B. F. Parr, Westinghouse; G. H. Bramall, General Electric; and A. B. Bradley, Jr., Birtman Electric.



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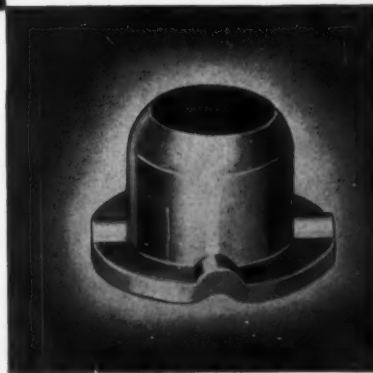
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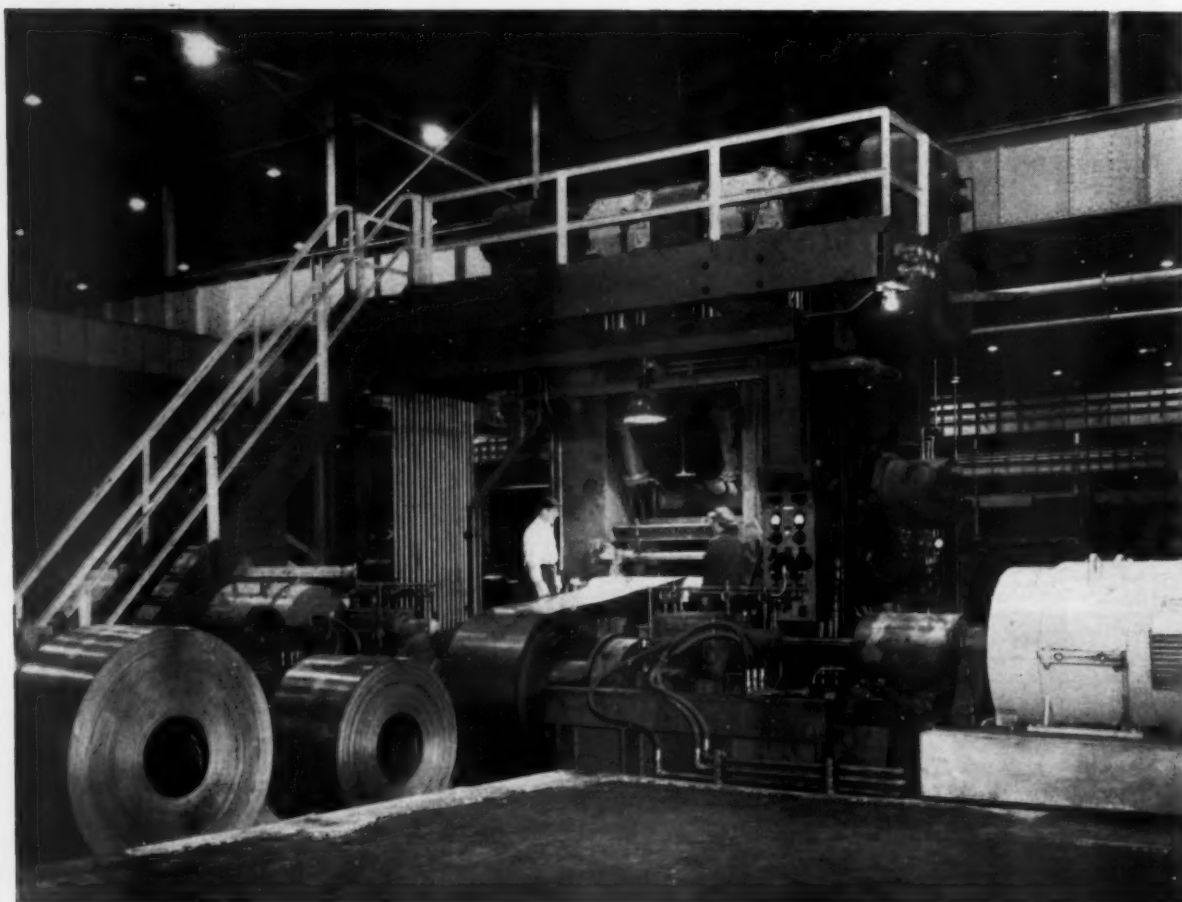
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Steel kitchen cabinet men plan for first "kitchen cabinet month"

THE first annual Steel Kitchen Cabinet Month, highlighting a multi-pronged industry promotional campaign augmented by individual manufacturers' efforts, will be held in October.

Decision to observe the special month, keyed to a determined sales effort, was made by the Steel Kitchen Cabinet Manufacturers Association at its annual meeting in White Sulphur Springs, W. Va., May 29.

Educational materials featuring steel kitchen cabinets will be prepared for newspapers, radio and television, and national magazines, and individual companies plan national ads and stepped-up promotional efforts of their own for Steel Kitchen Cabinet Month.

Elect new officers

Directing the SKCMA in its plans for the special month will be two new officers elected at the annual meeting, Charles S. Motter, president, and Harry S. Lawrence, vice president. Motter is vice president of Morton Manufacturing Co., Chicago; Lawrence is sales manager of Hubeny Brothers, Inc., Roselle, N.J.

Also elected at the annual session at The Greenbrier were F. E. O'Connor, general manager of Geneva Modern Kitchens, Inc., Geneva, Ill., and C. A. Reinbolt Jr., manager of product lines for American Radiator & Standard Sanitary Corp., Pittsburgh, who were chosen as new directors of SKCMA for terms extending until 1957. O'Connor was vice

president of the Association the past year.

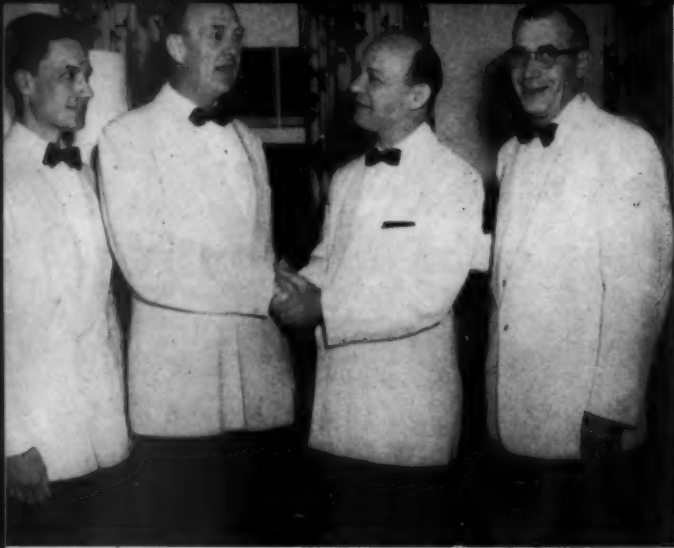
Arthur J. Tuscany Jr., Cleveland, was reelected executive secretary-treasurer.

Four directors who remain on the SKCMA board to fill out unexpired terms are C. D. Alderman, vice president and general sales manager of Mullins Manufacturing Corp., Warren, Ohio; Davitt S. Bell, president of Tracy Manufacturing Co., Pittsburgh; C. Fred Hastings, general sales manager of American Kitchens Division, Avco Manufacturing Corp., Connersville, Ind., and R. A. MacNeille, president, St. Charles Manufacturing Co., St. Charles, Ill.

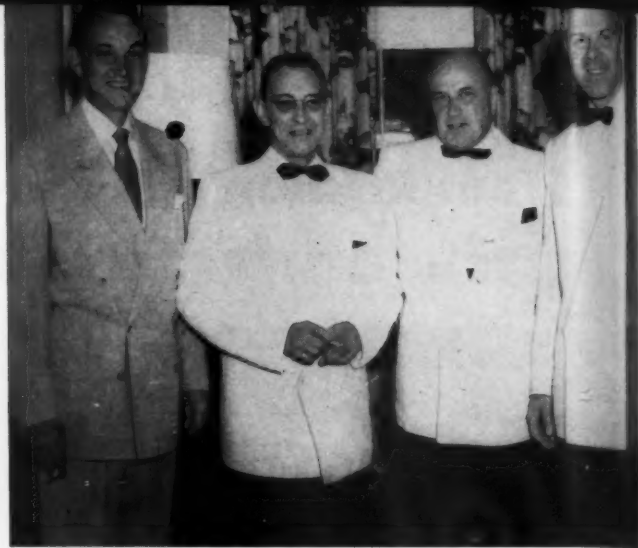
Motter, who has been serving as a director of the Steel Kitchen Cabi-

Members of Steel Kitchen Cabinet Manufacturers Association attending annual meeting. Kneeling, left to right: W. L. Klinkenstein, Palley; F. Hastings, American; A. C. Deimel, Mullins; W. B. McCredie and F. E. O'Connor, Geneva; H. J. Benzie, General Electric; Arthur J. Tuscany Jr., SKCMA. Standing, left to right: M. J. Berz, Marvel; B. T. Roe, Tracy; L. H. Selz, Selz Organization; J. F. Kamp, Universal-Rundle; R. A. Coffin, Tracy; C. R. Lucy, Mullins; C. P. Fisher Jr., G-E; J. L. Palley, Palley; H. S. Lawrence, Hubeny; C. K. Reynolds Jr., Hubeny; R. A. MacNeille, St. Charles; C. A. Reinbolt Jr., American-Standard; C. W. Stoup, American; C. H. Menge, Murray; J. E. Guertin, Avco; R. W. Sponholtz, Geneva; E. J. Catlin, Morton; F. W. Fennell, Universal-Rundle; E. E. Brey, guest; D. R. Barber, Elgin; J. Schneider, Harrison; G. A. Eisenhuth, Selz; M. M. Miller, Miller; C. S. Motter, Morton.





The old congratulates the new as M. M. Miller (second from right), retiring president of Steel Kitchen Cabinet Manufacturers Assn., congratulates Charles S. Motter, newly-elected president. Looking on are Arthur J. Tuscany Jr. (left), who was reelected executive secretary-treasurer, and Harry S. Lawrence, who was chosen vice president of SKCMA. Miller is president of Miller Metal Products; Motter, vice president of Morton Mfg.; Lawrence, sales manager of Hubeny Brothers.



Two new SKCMA directors with two holdover directors. Members are C. A. Reinbolt Jr. (left), manager of American Standard product lines, and F. E. O'Connor (second from right), general manager of Geneva Modern Kitchens. Holdover directors are C. Fred Hastings (second from left), general sales manager of American Kitchens, and R. A. MacNeille, president of Charles Mfg. Two other directors who remain on the board are C. D. Alderman, of Mullins; and Davitt S. Bell, of Tracy Mfg.

net Manufacturers Association, succeeds M. M. "Mike" Miller, president of Miller Metal Products, Inc., Baltimore, as president of the group. Miller was honored at the annual banquet in recognition of his services as SKCMA president since the Association's formation two and a half years ago. The group now has 21 members representing more than 90 per cent of the nation's steel kitchen cabinet production.

A major phase of the business at

the annual meeting included a report by the Lawrence H. Selz Organization, Inc., of Chicago, on the progress of the SKCMA's educational campaign which was launched in April. There also were reports of the committees on finance and budget, government relations, meeting plans, membership, traffic, technical, statistics, sales and advertising.

It was decided to again hold the annual meeting at The Greenbrier in White Sulphur Springs June 2-4,

1955. The SKCMA's next quarterly session is slated for Cleveland in September.

One of the entertainment features of the Steel Kitchen Cabinet Manufacturers Association's annual session was the first annual SKCMA golf tournament. Marvin J. Berz, president of Marvel Metal Products Co., Chicago, shot 77-6-71 over the Greenbrier course for both low gross and low net honors and gained possession of the SKCMA Cup for one year.

C. K. Reynolds Jr., manager of kitchen sales for Berger Mfg. Div. of Republic Steel, has the floor as three other executives lend an ear during a lighter moment at SKCMA annual meeting. Seated, left to right, are C. W. Stoup, general manager of American Kitchens; C. P. Fisher Jr., manager of kitchen cabinets for General Electric; and C. H. Menge, vice president of sales for Murray.

Charles S. Motter (left), newly-elected president of Steel Kitchen Cabinet Manufacturers Assn., presents Marvin J. Berz, president of Marvel Metal Products, with the SKCMA emblematic of the Association golf championship. Berz, who captured low gross and low net honors, was tournament master at the banquet.





From the heart of industry

The Vitreous Steel Products plant at Nappanee, Indiana, is in the HEART of America's economic and industrial center. Our fast transport trailer trucks allow prompt and economical deliveries to all our customers in plants from the west to the east coast. These trucks are able to bring back to our plant black iron parts to be enameled — usually with no extra charge.

Spur tracks from the main line of the B & O to our loading platforms also make rail shipment a thrifty operation.

The highest skilled labor available in America is at work in our Indiana plant, assuring you of quality porcelain enameling work at a quality location.

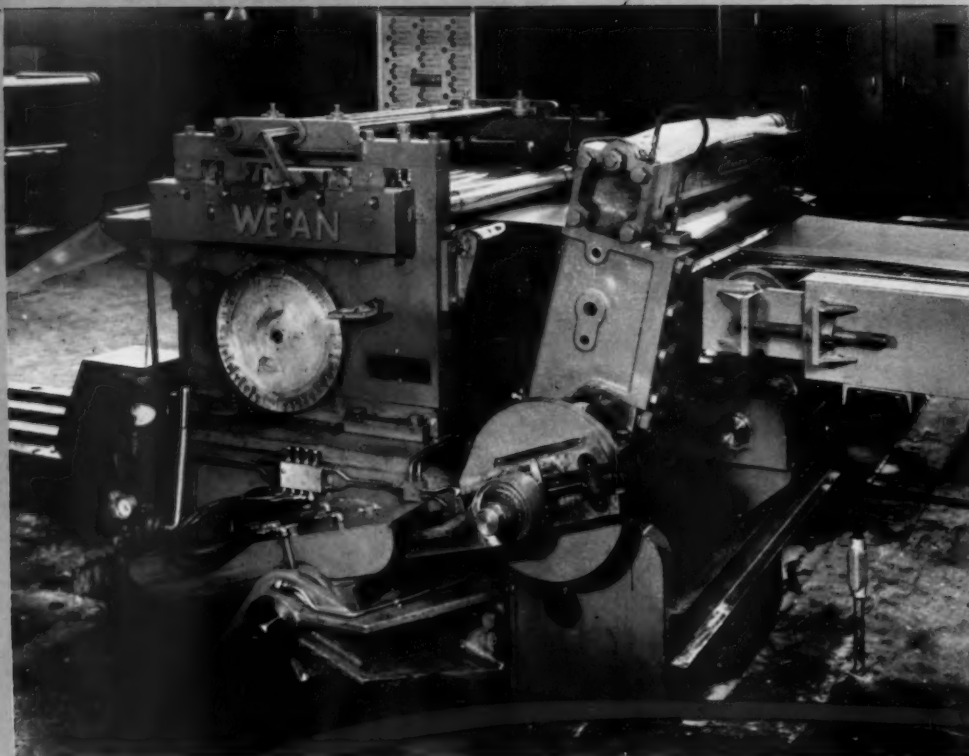
VITREO facilities help you meet the ever-growing demand for porcelain enameled parts by:

1. Acting as a source for stamping as well as enameling.
2. Enameling stampings of your manufacture.
3. Supplementing your own enameling plant.
4. Possibly saving die costs.
5. Quickly solving your color problems.
6. Keeping transportation costs low. (By operating our own trucks, we can often pick up and deliver at the same time, thereby saving most of the cost of one-way transportation.)



VITREOUS STEEL PRODUCTS CO.

BOX 1791 • CLEVELAND 5, OHIO (Factory at Nappanee, Indiana)

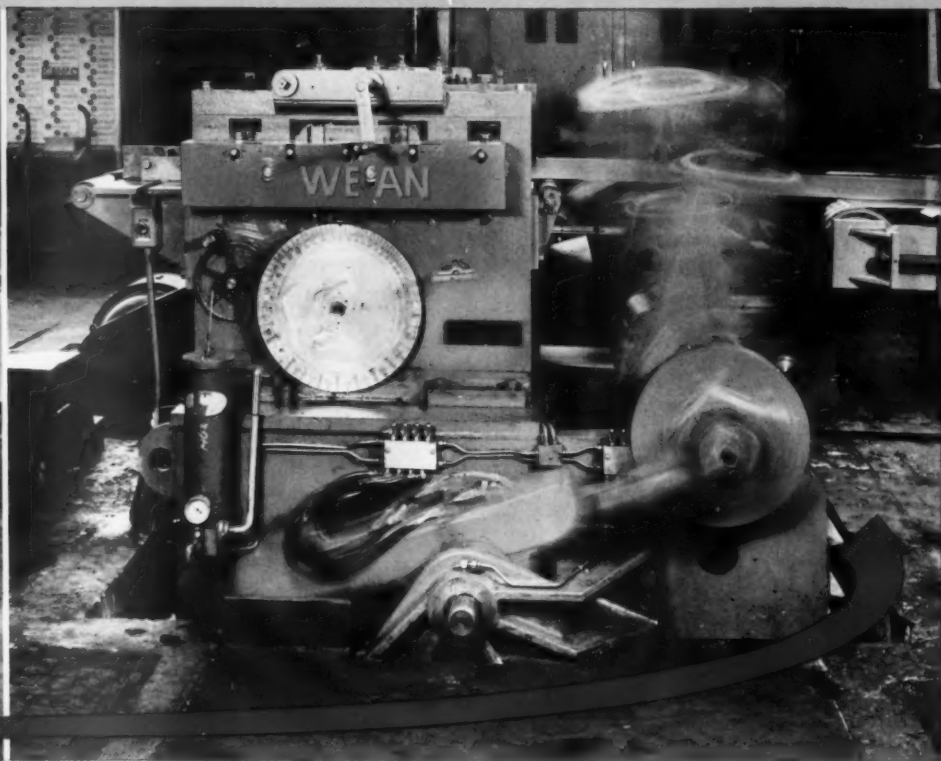
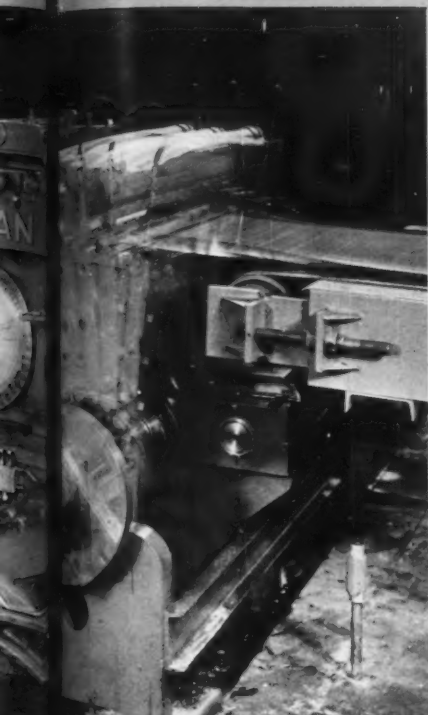


→ Here's the Amazing *Wean* That Makes 100 Cuts Per Minute

Saves
Bulk Steel Users
\$20 a Ton

Wean salesmen have a quick and painless method for actually showing you, using your own figures, how, by purchasing steel in coil form, you can save in the neighborhood of \$20 per ton on your steel costs. This is an offer you can't afford to overlook. If your plant is situated in an area where a Wean Line is operating we invite you to see it in operation ... talk with the people who operate it ... and we're sure you'll want this great system in your own plant.

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Flying Shear Line

Auto Resquared Tolerance

One-hundred cuts per minute to resquared tolerances . . . that's what users of the amazing new Wean Equipment Flying Shear and Slitting System are getting. That's why, if you are using steel in sheet form, it's important to you to get all the facts.

By purchasing steel in coil form you minimize the mill extras — that sometimes amount to more than \$1.00 per hundred weight. You reduce considerably both the personnel required to handle and inventory large steel stocks and the space needed to store various cut

sizes of steel of the same gauge and analysis.

And this Wean System provides you with faster production. Here is a shear line that will cut to tolerance at the rate of 100 times per minute. Measure this against your present squaring-to-multiples rate and you'll quickly see how a single Wean line can keep a bank of high speed presses in constant operation.

SEE IT IN ACTION . . . YOU'LL AGREE

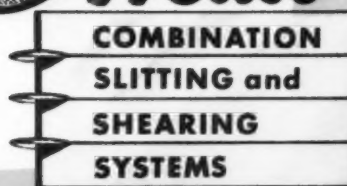
There's no comparison! The Wean Combination Slitting and Shearing Line is absolutely the last word in speed, precision and automatic operation. Before you buy let a Wean Equipment man show you one of these lines in operation. Talk with the operators. You'll be convinced. Simply contact the Wean office nearest you. They're listed below.



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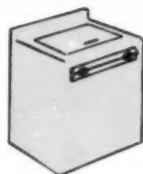
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Newark, N. J.
Cable Address: Weancor



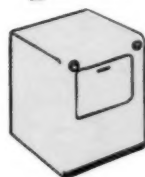
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SLITTING and
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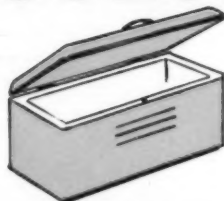
NOW Chicago Vit **OFFERS YOU**



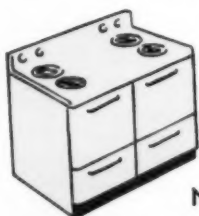
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No matter which system you choose you can be sure that Chicago Vit materials will give you the most uniformly stable results day after day . . . week after week. For more sales building information on colors for your products, contact your Chicago Vit representative or write to



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Enamelers attending session on architectural porcelain which was described as one of their largest potential markets.

Porcelain enamelers discuss markets, economic trends at mid-year meeting

MEMBERS of the Porcelain Enamel Institute met at the Edgewater Beach Hotel, Chicago, for the Mid Year Divisional Conference, May 12-14.

In a keynote speech, Institute president W. A. Barrows, of Barrows Porcelain Enamel Co., called the meetings "informal sessions that have become vital to the operations of our members . . . a time for reporting on past projects and the status of current projects. More important, it is a time for the discussion of future plans and how best to capture the existing and potential markets for porcelain enamel."

\$3 billion spent each year for home appliances

W. H. Lowry, of Vitreous Steel Products Co., and chairman of the

General Enameling Division, reported that "we Americans are now spending approximately \$15 billion each year on home goods. Of this figure, almost \$3 billion is spent for appliances, with about 40% of that figure being for the purchase of refrigerators and washing machines

"There is a trend toward more and more automatic equipment for the home now. This is a trend that shows every sign of continuing into the future with the desire of most people to have less work in the home," said Lowry.

Water heater storage tanks

J. B. Willis, service manager of Pemco Corp., presented a picture of the market for "glass-lined" hot water heater storage tanks. He cited a survey which showed that more than

12,000 domestic hot water tanks are replaced every week, indicating that the water heater replacements due to corrosion amount to \$225 million a year. Willis stated that a number of manufacturers are either entering or in the process of investigating the field for glass-lined water heaters.

Willis cited figures published in May 1954 *finish* which showed a total of 862,000 electric water heaters sold during 1953, and 2,219,679 non-electric water heaters shipped during the same period. The total exceeds 3,000,000 units, and represents a tremendous potential market for the use of porcelain enamel, concluded Willis.

Widening horizons

Glenn A. Hutt, vice president of

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Group at luncheon of Porcelain Enamel Institute's general enameling division.





Retiring president Sheldon Coleman (left) with T. T. Arden (center), new president of GAMA, and W. F. Rockwell Jr., new first vice president.

finishfoto

New GAMA Officers (to take office in October)

President: T. T. Arden, executive vice president, Grayson Controls Division, Robertshaw-Fulton Controls Co., Lynwood, Calif.

1st Vice Pres.: W. F. Rockwell Jr., president, Rockwell Manufacturing Co., Pittsburgh, Pa.

2nd Vice Pres.: A. B. Cameron, president, Ruud Manufacturing Co., Pittsburgh, Pa.

Treasurer: Lyle C. Harvey, president, Affiliated Gas Equipment, Inc., Cleveland, Ohio.

Action program stirs gas appliance manufacturers at annual meeting

FORECASTS of a favorable sales year despite a slow start, and determination to actively combat adverse gas legislation highlighted the 19th annual convention of the Gas Appliance Manufacturers Association held at the Drake Hotel, Chicago, May 18-21.

The 315 convention registrants unanimously approved a resolution condemning the Hunt Bill, now before the U. S. Senate Commerce subcommittee, that would prevent the expansion of the natural gas pipeline into the Northwest, the one section of the country that does not have access to this fuel.

It urged the Federal Power Commission to act favorably on applications now filed with it to extend natural gas pipelines to the Northwest from Canadian and domestic gas fields.

T. T. Arden, of Lynwood, Calif., now serving as first vice president of GAMA, was elected president to succeed Sheldon Coleman, of The Coleman Co., Wichita. The entire slate of new officers, division and group chairmen and vice chairmen will assume their duties next October. Arden is executive vice president of Grayson Controls Division of Robertshaw-Fulton Controls Co.

Also elected to GAMA office were W. F. Rockwell, Jr., president of Rockwell Manufacturing Co., Pittsburgh, first vice president; and A. B. Cameron, president of Ruud Manufacturing Co., Pittsburgh, second vice president.

Lyle C. Harvey, president of Affiliated Gas Equipment, Inc., Cleveland, was re-elected treasurer.

Bright outlook for sales

President Coleman declared that the outlook for the sale of gas appliances was never better. The fact that pipeline construction is scheduled to continue at a rate in excess of a bil-

lion a year through 1956, the forecast that utilities will add a million new gas customers annually for the next few years, and the boom in the home modernization market were among the reasons he cited.

He said that many of the delegates he talked to were optimistic over sales potentials despite a slow first-quarter start because they intended to balance this by increasing their advertising and promotional activity at the local level.

However, he warned the group in his keynote address that the gas appliance business must undergo some self-improvement. He pointed out

Presentation of awards was made at the annual meeting. Here Sheldon Coleman, GAMA president, presents award for outstanding service to the gas industry to Harold C. Day, of American-Standard.



that the profit margin for industry as a whole is five per cent while for the gas appliance industry it is only two and one half to three per cent. Coleman said it is in this area that the industry should concentrate its efforts at improvement.

Later during the convention, Harvey, who also serves as chairman of the GAMA Gas Industry Development Committee, took some manufacturers to task for their apathy towards the "10-city Demonstration Program"—a pilot operation of the G.I.D. plan now being conducted in ten scattered communities — and reminded the members that all have a stake in the outcome of this experiment.

Need to concentrate now more on marketing than production

He warned that manufacturers concentrate too much on production techniques and not enough on the distribution of their products to the ultimate consumer.

"We sweat and slave and invest capital to cut a percent or two off the factory cost," Harvey said, "and then give away ten per cent on the selling price in the way of price cuts and concessions."

Distribution is even more important, Harvey said, in view of the fact that we are in the midst of an expanding market with spending power five times greater than in 1940; with 65 per cent more children than in 1940, the birthrate last year having been the highest on record; and with 67 per cent of the nation's dwellings more than 20 years old, a fact which, he said, sets up a tremendous replacement market.



Discussing industry affairs are four GAMA division chairmen. Seated, left to right, are Frank H. Post, of Robertshaw-Fulton, chairman of automatic controls division; Harold C. Day, of American-Standard, chairman of gas house heating and air conditioning division; Harry B. Carbon, of Bastian-Morley, chairman of gas water heater division; Standing is W. T. Trueblood Jr., of Magic Chef, chairman of domestic gas range division.

Form four new divisions

Four new divisions were formed during the convention after approval by the board of directors at the first of two board meetings. The divisions and their chairmen are:

The conversion burner division — E. P. Hayes, vice president of C. A. Olsen Manufacturing Co.; gas boiler division — N. E. Westphal, of Weil-McLain Co.; recessed heater and floor furnace division — Ralph E. Solomon, director of engineering, Samuel Stamping and Enameling Co.; and gas furnace division—G. W. Denges, vice president, Williamson Heater Co.

Formerly all were included in the gas house heating and air conditioning equipment division. All chairmen of the new divisions will be on GAMA's board of directors.

The domestic range division asked its promotion committee to examine the possibility of participating in the "Mrs. America" contest after hearing a report on this year's contest by Hansell Hillyer, president of South Atlantic Gas Company of Savannah, Ga. Hillyer said that more than ever this year qualifications for the state and regional contestants will emphasize homemaking abilities.

Earmark promotion funds for "Mrs. America" contest

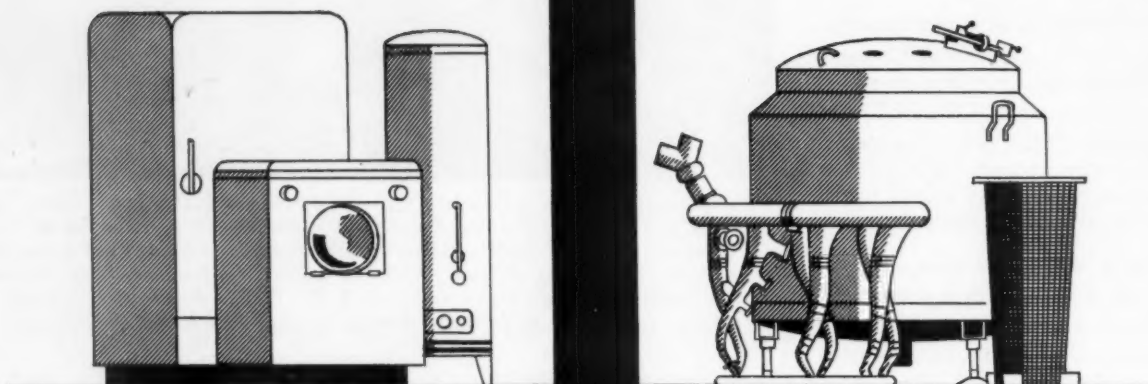
The promotion committee tentatively earmarked \$10,000 for the contest subject to approval of the full division and providing that the competition would be run as outlined by Hillyer with backing from utilities

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Weighty matters of the GAMA meeting were put aside temporarily for this interlude. Left to right are Ralph Solomon, Samuel Stamping; J. E. Kern, Pacific Coast Gas Assn.; F. A. Ryder and A. R. Collins, Stewart-Warner; and Keith Davis, Bryant Heater.

for consumer or industrial products



Porcelain Enamel adds *Salability*

If *greater salability* is one of your design objectives, consider the potent sales features provided by Porcelain Enamel—eye-appeal, durability, ease of cleaning, and unequalled resistance to moisture, heat, abrasion and corrosion.

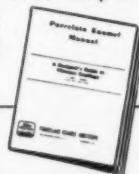
For consumer products, the Porcelain Enamel finish insures scratch-proof beauty and non-fading color; it gives products longer life and makes them easy to keep clean and new-looking.

For industrial products, Porcelain Enamel's outstanding ability to resist corrosion, abrasion, high temperatures

and thermal shock has a strong appeal to buyers. And for many products used in industrial service, the added beauty, color and ease of cleaning provided by Porcelain Enamel are "bonus" advantages that make selling easier.

To assist engineers and designers in properly appraising the advantages of Porcelain Enamel, we will be glad to furnish technical data and assistance.

The Porcelain Enamel DESIGN MANUAL shown here gives practical suggestions and factual data helpful in making most effective use of this modern engineering material. We will be glad to send you a copy.



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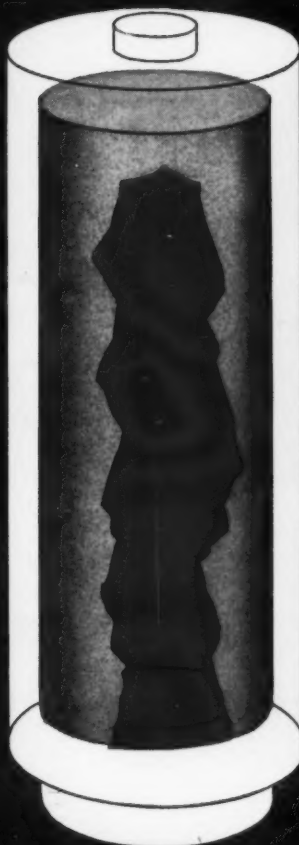
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Company _____

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Glass-Lined Tanks
can help you sell more

WATER HEATERS



Longer service life has real appeal to homeowners—and nowhere more so than in the water heaters they buy.

Therefore, it is “good news” to everyone that more and more water heaters will be built with “glass-lined” tanks. The reason, of course, is that Porcelain enameling—the process used to provide the glass lining on the tanks—is the most practical and sure way to combat rust and corrosion.

Today's better porcelain enamels are immune to heat and moisture, exceptionally high in alkali and acid resistance. They also go on smoother, more uniformly—this latter point being extremely important in water heater tanks.

Manufacturers and dealers alike will be smart to put most of their selling effort this next year behind glass-lined water heaters. It's a “hot” item and a quality market. Why not get your share of this business?

PORCELAIN ENAMEL is a “natural” for WATER HEATERS

Only Porcelain enamel, the *fused-in* finish, gives users all these advantages:

1. Rust and corrosion resistance
2. High alkali and acid resistance
3. High heat resistance
4. Longer service life
5. Wider consumer acceptance



FERRO CORPORATION

Porcelain Enamel Division

4150 EAST 56th STREET • CLEVELAND 5, OHIO



Question: What business does an auto have in a stove exposition? Answer: Corning Fiberglas Corp. is demonstrating practical application of Fiberglas insulated plastics for fabricated metal products.

Stove men plan for competitive selling

change name of national organization to Institute of Appliance Manufacturers

illustrated with finishfotos

THE annual convention and supplier exhibit of the Institute of Appliance Manufacturers (formerly Institute of Cooking and Heating Appliance Manufacturers) was held at the Netherland Plaza, Cincinnati, on June 6-9. Normal attendance of approximately 500 was reported and exhibiting suppliers indicated that while in some instances fewer representatives appeared per company, those in attendance showed good in-

terest in materials and components developments.

In opening the general session of the 22nd annual meeting, F. Donald Hart, Institute president and executive vice president of Temco, Inc., reported that the Institute was in a better position than at any previous time to give valuable research and statistical help to its members, with more personnel available for this type of service.

According to Hart, "The board of trustees stands ready to recommend expansion to include the manufacturers of washers, ironers, dryers, etc.," but he did not feel the Institute was prepared to attempt to incorporate all of them at this time and, therefore, would not actively solicit memberships from this group.

Keynote speaker for the general session was Guy George Gabrielson, president of International Metals In-

Edward R. Taylor, of Motorola, told how specialty selling can aid in creating new business.



F. H. Guthrie, of Newark Stove, one of the leaders in the discussion on the use of color in home appliances, stated that the success of the whole program will be determined by the willingness of the consumer to pay the extra cost.



dustries, Limited, in Canada, and director of seven American companies (two of them in the cooking and heating industry). Included in his comments were: (1) Business should be permitted to write off as great or as little depreciation against investment as they wish, up to the point of total indebtedness. He pointed out that in the long run this would be no hardship on the Government, as the total amount of taxation in the end would be the same. (2) That the anti-trust laws as now written limit American business overseas. He felt that such restrictions should terminate at the continental limits of the country and put American businessmen in the position to compete with the enormous foreign cartels.

Specialty selling needed for pick-up in business

A highlight speaker of the general session, representing the field of appliance manufacturers, was Edward R. Taylor, vice president of marketing, Motorola, Inc. (formerly an executive with Hotpoint). Taylor said: "... as I see it, we're in for good business for the balance of the year ... I envision a pick-up in activity from here on. Now, this doesn't mean that you can relax and coast along. There is no easy way in the specialty selling business. Specialty selling is creative selling — and creative work is tough ... that's why it's so very gratifying."

In support of his business optimism, Taylor cited the downward trends of inventories in all businesses. "Not precipitous — I'll grant you — but steadily dropping. From all I can learn about appliance inventories, you don't have much to concern you. As for television stocks, they are too low, if anything, so we should be in good shape to drive hard for the seasonal fall pick-up."

Mr. Taylor continued, "One change that I know has you worried is the refusal of dealers to stock up on inventories ... they prefer to buy on a 'onesy-twosy' basis. But is that so bad? Sure, it may put an extra burden on you in projecting your production requirements — but if you've got a good sales forecasting

finish JULY • 1954



Photo taken during session of Gas Space Heater and Floor Furnace Division.

system, that's not too great a problem. I'll take that any day to an inventory recession such as we went through in the spring of 1949."

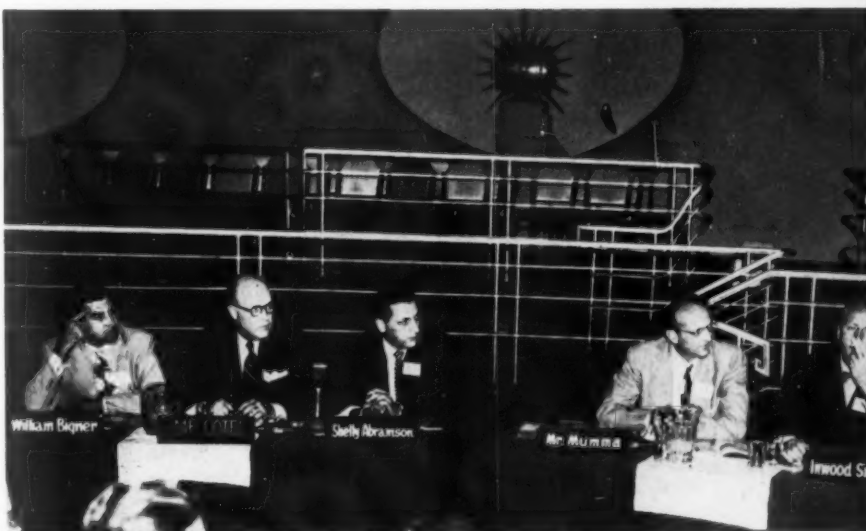
The following are four reasons cited for dealers' reluctance to stock heavily:

1. They keep their stocks low so they can take advantage of special deals.
2. They know there's no shortage of merchandise — so why tie up capital?
3. They're always afraid of getting burned by price cuts.

4. In many cases — their financial condition does not justify extending credit.

Taylor discussed each of these points, and showed how they could be handled constructively to the advantage of the manufacturers. (finish plans to publish a more complete coverage of Mr. Taylor's talk in a later issue.) The speaker recommended an article "I Failed as a Discounter" (June issue of *Electrical Merchandising*) for reading by all manufacturers in connection with the current

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Speakers at the Sales and Advertising Executives' session included, left to right (above) William Bigner, of Bigner, Inc.; M. F. Cotes, Duo-Therm Div. of Motorola; Shelly Abramson, Bensinger Outfitting Co.; George Mumma, Sunray St. Co.; Inwood Smith, RCA Estate Appliance Corp.; (below) Sheldon Coleman, moderator, Coleman Co.; Leslie W. Shaw, Preway, Inc.; Bob Murrell, Tri-State Distributing Corp.; Robert Helmick, Griffith Distributing Corp.; and Harold Rice, Go Housekeeping Shop.





thin skins make the toughest hides

TITANOX titanium dioxide puts porcelain into the *film* category. This compound, when properly formulated into porcelain enamel, hides steel appliance surfaces so well that thick coatings are not required.

Modern titania porcelain enamel is unsurpassed as the tough beauty finish for modern sinks, stoves, appliance cabinets and wherever water, heat, household acids and alkalis appear. TITANOX titanium dioxides that do this job best are TITANOX-TG and TITANOX-TG-400 for they are

designed specifically for porcelain enamels.

Consult with our Technical Service Department for the solution to any problems you may have concerning the formulation of modern porcelain finishes. Titanium Pigment Corporation, 111 Broadway, New York 6, N.Y.; Atlanta 2; Boston 6; Chicago 3; Cleveland 15; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 9, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

TITANOX
the brightest name in the finish

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TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY



WHEN YOU BUY



YOU GET

highest quality products • performance • service

When you buy ESSAK Metal Cleaners you can have complete confidence that you are buying the finest quality cleaning compounds on the market . . . confidence that you will obtain longest life in your cleaner baths . . . confidence that you will be served in a way that will assure you of maximum effectiveness from your cleaning operations. ESSAK Metal Cleaners combine these two all-important factors — performance and price-per-pound. The result is a maximum yield from metal cleaning operations, and overall costs that are not only highly competitive with the so-called "lower price" cleaners but frequently less in the long run. So, be a wise metal cleaner purchaser. Buy a known standard of quality. Buy cleaners that are tailor-made to suit your need. Buy ESSAK.

ESSAK BOND-CLEEN

is a product which provides an even crystalline coat of fine phosphate particles chemically bonded to the surface of the steel. This in turn serves as a matrix for the paint, which, when baked on, has adhesion properties second to none.

ESSAK NAMEL-CLEEN

has proved highly successful for cleaning steel during pickling for Porcelain Enameling. NAMEL-CLEEN possesses outstanding emulsification properties and characteristics that assure long life in use . . . a unique balance seldom found in a proprietary product.

ESSAK POWER-CLEEN

will provide economical operation and improved production, due to higher cleaning efficiency and longer life. POWER-CLEEN has been used successfully in porcelain enameling, painting and cleaning prior to electroplating, and has many general purpose applications where barrel cleaning and continuous cleaning units are utilized. POWER-CLEEN will remove oils, drawing compounds and greases quickly, economically, and efficiently. Give yourself the best finish possible. Use POWER-CLEEN to obtain it.

ESSAK SPRA-CLEEN

is a well balanced, potent, spray cleaner which provides complete solubility, long life and unexcelled results. SPRA-CLEEN has been used successfully in railroad cleaning, stamping plants, food processing plants, etc. This experience assures you of complete positive performance and an end product of finest quality.

ESSAK LECTRO-CLEEN

is a well balanced potent electro cleaner developed for use prior to electroplating. LECTRO-CLEEN has the necessary conductivity to reach corners and other hard to get to areas. It has been used successfully on small appliances such as toasters, irons, hardware, radio and T.V. components, and on metal furniture, etc.

ESSAK STRIP-ALL

is a heavy duty soak cleaner which has high solubility and long life. STRIP-ALL has been used successfully in paint stripping, and for removal of heavy greases and oils found in automobile and truck maintenance and railroad shops. STRIP-ALL will perform at its best under heavy and hard to remove soil conditions.



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serving the metal products industry for over 10 years



Westinghouse Electric Corporation



Amos Molded Plastics



Chicago Molded Products Corporation

finishfotos

Geauga Industries Co.



National plastics show a

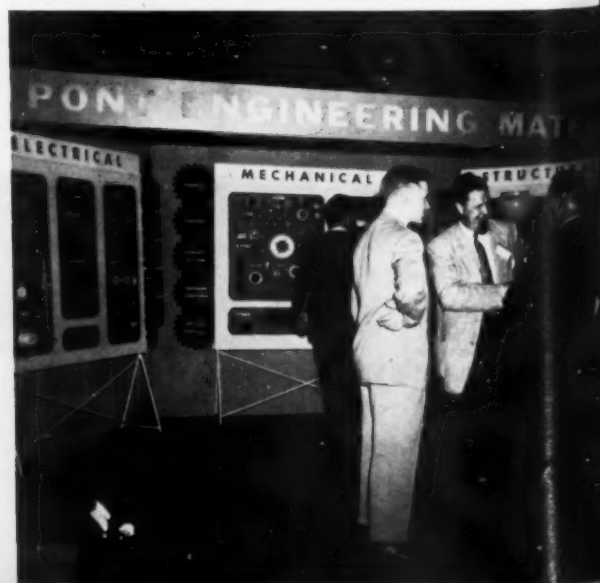
PRODUCTION of plastics will double in four years, reaching 6 billion pounds by 1958, John J. O'Connell, president of The Society of the Plastics Industry, Inc., predicted at the National Plastics Exposition and Conference held in Cleveland, June 7-11.

Estimated production of plastics materials will exceed 3 billion pounds this year, he added. This is equivalent to a dollar volume of about \$1.5 billion.

O'Connell based his prediction on the favorable response of the record number of industrialists attending the Exposition and Conference to the new plastic materials, fabrication techniques, machinery, and applications displayed and discussed here. He reported that attendance at the Exposition totaled 19,000 and reached 1,058 at the technical conference, double that of the last meeting held in 1952. In all respects — attendance, number of exhibitors (172) and booths (232) — this has been the most successful Exposition and Conference in the eight years the Exposition has been held.

Copolymers are now moving into the plastics picture. Styrene copolymers, utilizing rubber, have stimulated the rapid rise in vacuum forming, one of the highlights of the 1954 Exposition. Vacuum forming, it was evident at the show, is moving into new

E. I. du Pont de Nemours & Co., Inc.





Ferro Corporation



General American Transportation Company

ow and conference

reaching a number of fields of plastics application formerly held by conventional molding techniques.

Polystyrenes, used primarily in the making of fibrous glass-reinforced products, are also moving into new fields. Many new applications in the form of housings, metalworking tools and dies, and unglamorous but vital industrial products attracted strong interest.

Plastics piping, it was evident, is rapidly growing in acceptance. Consumers will soon have an opportunity to use such pipe in the home.

Automatic controls now make possible speedy production of precision plastic moldings at rates unheard of two to three years ago.

One such machine, now in service, can produce two 20-inch TV cabinets every four minutes. Such cabinets use up to 35 lbs. plastic each. In an eight-hour day, the machine can consume up to 8,000 lbs. of plastics material. It is pushbutton operated. With new manufacturing techniques, molders predicted that colored TV cabinets would soon reach the consumer market. Colored urea — the colorful plastic material first developed by Battelle Memorial Institute for housings for meat scales — such cabinets will open new markets for TV sets. Several brand-new colored TV housings were shown at the Exposition.

General Electric Company



The Richardson Company

finishfotos

Rohm & Haas Company



Good plant practice in stripping organic coatings

by *B. F. Lewis* • TECHNICAL DIRECTOR, NORTHWEST CHEMICAL CO.

THE great variety of paint finishes which have been developed within recent years poses a difficult problem in connection with the removal of such finishes in salvage operations.

Stripping baths fall generally into three categories: strong alkaline solutions, straight solvent baths, combinations of alkalis and solvents.

Requirements

Since most coatings are fairly highly pigmented, and the film baked out at high temperatures, the stripping bath must be capable not only of breaking down the film into a soluble form, but must also be capable of removing the pigments, leaving the metal surface in a clean condition.

These requirements are most likely to be met by a stripping bath containing a combination of alkalis and solvents, together with additives which "plate out" on the metal surfaces and on the pigments, making these solids

repellent to each other. In such a bath, operated at 170-180° F., most paint finishes will be completely reduced to a soluble form within an immersion period of within 3 to 15 minutes.

Importance of rinse

Regardless of the stripping bath used, however, the subsequent rinse is of great importance. This rinse should, in all cases, be a water spray of sufficient velocity to successfully wash away both the solubilized paint film and the residual pigment; thus, it is obvious that the parts for stripping may not be nested or crowded together in the stripping operation.

In the maintenance of the stripping bath, means should be provided for settling and decantation, so that the sludge resulting from operation may be removed and the clear stripping liquor salvaged for further use.

Cermets team up with jet propulsion

→ from Page 37

burner walls. In turn, the A-418 ceramic coating protects the liner from the rapid oxidation which it would otherwise experience.

Arc-welding through

ceramic coatings

Because A-418 ceramic coatings are flux-like in character, it is possible to arc-weld through them with good results. Plant production takes advantage of this facility by building large structures in small component parts and welding them together after they have been ceramic coated. In this way, the ceramic coating process is simplified and economic savings are made because the parts are more accessible for coating purposes.

The ceramic coating melts, floats on the weld metal from the heat of the welding arc and combines with the welding flux. Along the weld zones, the adjacent ceramic material

smoothly blends into the weld without spalling because of the good thermal shock resistance of the coating. This advantage is also effectively used in the fabrication of experimental jet engine assemblies which are partly ceramic coated, with uncoated portions within the structure.

Our development laboratory continually tests every available ceramic material in its test chamber facility. This arrangement utilizes a burner which burns high octane fuel within test headers coated with the ceramic to be evaluated. Flame temperature is 2200°F. The ceramic is heated to 1700°F. skin temperature for a period of 25 hours. In these comparative tests, A-418 ceramic coatings have displayed less physical change due to temperature than any other tested. The test facility is also used to aid production in determining the proper thickness for coating specified parts or to decide such questions as the number of firings which are most desirable.

Refrigerator assembly at Westinghouse

→ from Page 28

Following the leak test the cabinet is again raised to an upright position and the fan cover installed. Next come brackets to hold the cabinet firmly in place on its base during shipping. Then the door is attached to the box.

Door assembly

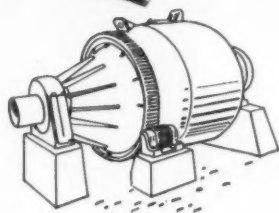
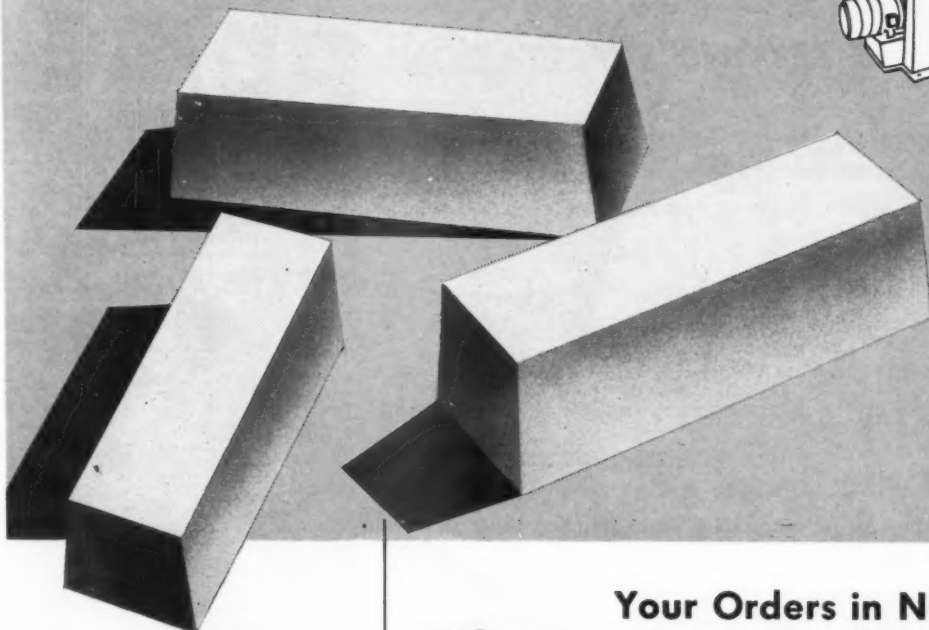
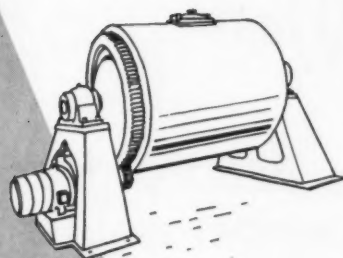
The assembly of the door involves two sub-assembly operations. In one, rubber gaskets and plastic shelves are attached to the inner door panel or liner and the contour filled with glass wool insulation. In the other, the outer door shell is removed from the overhead conveyor that brings it from the paint finish area and placed on a sub-assembly bench where the hinge and latch mechanisms are attached and the weld seam is sprayed with wax to seal it. The door is then placed on the moving slat conveyor and packed with glass wool insulation. The inner door panel is placed on the outer door and attached to it with screws. The completed door is given the same air leak test given the cabinet. It is then ready for hanging.

The first step in hanging the door is to mount the strike bolt to the cabinet. The door is then hung and when properly positioned, holes are drilled into the hinge bar and pin screws driven in to hold the door solidly in position.

The control dial is then put in and the refrigerating unit connected to a traveling electric outlet and run for 10 minutes to be sure the unit operates satisfactorily. The refrigerator is then cleaned inside and out, the accessories placed in the cabinet, and the electric system ground tested and the control continuity tested.

Then comes the tunnel of light where the exterior finish is examined very carefully to be sure there aren't any blemishes in the finish paint coat or any dinges or scratches in the cabinet shell. Any imperfections in finish are corrected upon emergence from the "tunnel of light." Final inspection follows, then crating for shipping. (See Page ST-7)

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super high density **brick**



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GRINDING BALLS
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Your Orders in NOW for Vacation-Time Relining

Numerous tests in routine service have proven that McDanel Super High Density Brick wear two and a half times longer than the conventional Porcelain Brick. That's a lot of plus service — and means, specifically, fewer tear-outs and relinings — and a substantial reduction in the cost of operation with the end result of greater profits.

But, whether you decide to switch to the use of these Super High Density Brick or to continue on with the always dependable Porcelain linings, anticipate as early as possible your Vacation-time relining needs. Specify date and we will then be able to make shipment to suit your convenience.

*Write for the McDanel
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Equip your mills with McDanel's patented Mill Head Assembly
— avoid contamination and be assured of uniformity of batch.

What's News for you from Pemco...

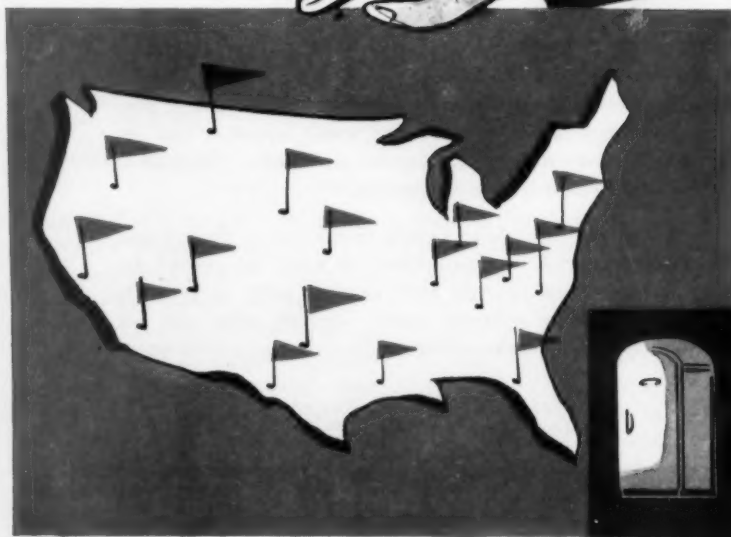
USERS OF NEOWITE 500 SERIES REPORT RESULTS BEYOND EXPECTATIONS

From all over the country come reports of highly satisfactory color production with Pemco's Neowite 500 Series. Every claim made for its ability to simplify color production is being met with flying colors.

The one **BIG** reason for the results it gives is that it is especially formulated to be **COMPATIBLE** with Pemco Coloring Oxides. Color match and color stability are assured under normal firing conditions.

And—you can spray it on right over the groundcoat. The high covering power of Neowite 500 will give you attractive, eye-appealing pastel shades with one coat.

Pemco color knowledge is available to you through the Pemco representative—call on him for information or for help in setting up a trial run in your plant.



PEMCO CORPORATION, Baltimore 24, Md.

"The World's Finest" PORCELAIN ENAMEL FINES • COLORING OXIDES
• SCREENING PASTES • GLAZE FINES • BODY AND GLAZE STAINS •
UNDERGLAZE & OVERGLAZE COLORS • VITREOUS GLASS COLORS



SEE 7,000,000 DISPOSAL UNITS IN USE BY 1960

The Plumbing and Heating Industries Bureau has revealed that the home garbage disposal industry has its sights set on a total of nearly 7,000,000 units in use in homes by 1960. It was reported that sales of waste disposal units in the last three years amounted to more than all previous sales since 1935.

BERMAN NAMED PRESIDENT OF CONSOLIDATED INDUSTRIES

Henry J. Berman, formerly vice president of A. J. Lindemann & Hoverson Co., has joined Consolidated Industries, Inc., Lafayette, Indiana, as president and general manager. The company manufactures gas furnaces.

NEW EBCO PLANT TO HAVE EXTENSIVE COOLING FACILITIES

One of the largest single packaged air conditioning installations in the world has been started in the Ebco Mfg. Co. plant under construction in Columbus, Ohio. Ebco makes Oasis water coolers, dehumidifiers and refrigerated beverage dispensers.

The company will have 15 factory-assembled central cooling units totaling 647½ tons of cooling capacity for the new factory building which is scheduled for completion late this year. The Ebco plant will be a windowless, fully air-conditioned structure containing 220,000 sq. ft. of fac-

tory space and 20,000 sq. ft. of offices, all on a single floor.

The plant's packaged cooling equipment is being provided by United States Air Conditioning Corp., Minneapolis.

AIR COOLING ENGINEERING ENTERS ROOM COOLER FIELD

A new line of room cooling units has been placed on the market by Air Cooling Engineering Co., Evanston, Ill., under the trade name of "Polar-Breez." The unit requires no floor space, may be mounted in a window vent, on a roof, or in a place outside and away from the building.

FRIGIDAIRE HEAD SEES GOOD BUSINESS "FOR THOSE WHO GO AFTER IT AGGRESSIVELY"

Mason Roberts, General Motors vice president and Frigidaire general manager, reported that Frigidaire dealers recently had their second biggest single week in history with retail sales of over \$23,600,000 resulting from a concentrated sales drive. More than \$9,250,000 worth of products were sold in a single day, May 21, climaxing the week.

Explaining that the intensive drive was aimed at "sounding the depth of today's market," Roberts was optimistic. "The results indicate broad public acceptance of our 1954 products and prove conclusively that the business is there for those who go after it aggressively," he declared.

LAU BLOWER APPOINTMENTS

Lau Blower Co., Dayton, Ohio, has named Samuel J. Hipple, vice president of special assignments; William E. Prather, vice president in charge of production; and Harold E. Nemecek, purchasing vice president.

WHIRLPOOL NAMES MITCHELL HEAD OF EXPORT, DEFENSE SALES

Robert M. Mitchell, vice president of Whirlpool Corp., has been appointed head of the export and defense sales division, Elisha Gray, president announced.

AMERICAN KITCHENS PROMOTES TURNER TO WORKS MANAGER

Paul Turner, formerly chief industrial engineer, has been named works manager of American Kitchens Division, Avco Corp., Connersville, Ind., according to Curry W. Stoup, division general manager.

Turner succeeds Frank Hibbeln who is now works manager of Avco's New Idea Division, with plants in Coldwater, Ohio, Sandwich, Ill., Ft. Dodge, Iowa, and Collegeville, Ill.

AMERICAN AIR FILTER BUYS ICE COOLING APPLIANCE

American Air Filter Co., Inc., Louisville, has purchased the entire plant and equipment of Ice Cooling Appliance Corp., Morrison, Ill., it was announced by W. M. Reed, AAF president.

The 152,000 sq. ft. Morrison plant will be operated by AAF's Herman Nelson Division, of Moline, Ill., which produces heating and ventilating equipment. In full production, the Morrison plant will employ about 200 people, doubling the present payroll, stated Howard M. Fitch, AAF vice president and division general manager.

KOCKUMS JERNVERK INTRODUCES ELECTRIC RANGE IN SWEDEN

A major promotional campaign to introduce a new electric range on the Swedish market was announced jointly by Sten Wennergren, sales manager of Kockums Jernverk, Kallinge,

Sweden, and Harry T. Marks, administrative vice president of Ferro Corp., Cleveland.

The new range, known as the Superlyx, is manufactured at the Kallinge Works. It is equipped with surface heating units made by Tuttle & Kift, Inc., Chicago, a Ferro subsidiary. Kockums has been licensed by T&K to produce Monotube surface heating units, and the new range is equipped with the first of the

Monotubes manufactured in Sweden.

MILLER METAL PRODUCTS

ELECTS FILBERT VICE PRES.

Howard C. Filbert, formerly chief engineer, has been elected vice president in charge of the engineering research division, Miller Metal Products, Inc., Baltimore, manufacturers of Beautycraft Curv-Line Kitchens.

A primary function of the division,

apart from product development, is a large research and development program on new types of military weapons and equipment.

FIRESTONE STEEL PRODUCTS

UPS CALL AND OLDHAM

J. B. Call has been named plant production manager of Firestone Steel Products Co., Akron, Ohio. D. E. Oldham was appointed chief production engineer.

AUER REGISTER DESIGNS

NEW PERIMETER REGISTER

A new type of baseboard air diffuser, designed to efficiently distribute warm or cool air, has been developed by The Auer Register Co., Cleveland, Ohio.

Called the Perfusaire, this register is readily adaptable to older dwellings with high baseboards, as well as to new homes. It has a pre-cut hole to fit $2\frac{1}{4}$ " x 12" duct openings, and knockouts for making the opening size $2\frac{1}{4}$ " x 14" on the job, without cutting.

U. S. NAVY CIVILIAN SERVICE

AWARD TO FORREST NAGLEY

Forrest Nagley, of the Bureau of Ships, Department of Navy, is the recipient of the Meritorious Civilian Service Award, one of the two highest awards the Navy gives to civilians.

In a letter notifying him that he would receive this award, Nagley was informed that the award was "presented to you in recognition of your exemplary work in connection with the overseeing of the research and engineering development of ceramic coatings. You have done a highly effective job in fostering the interests of both Bureau personnel and members of industry in the potentialities of ceramic coatings. By your persistence and excellent engineering studies you have disproved many unwarranted objections to the use of ceramic coatings."

The letter also stated that Nagley's pioneer specifications for ceramic coated bulkheads, snorkel tubes and mufflers have "improved submarine habitability and considerably pro-

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New Monarch facilities are modern and extensive—ready to serve you efficiently and promptly with all types of production welding, including projection, spot and continuous seam welding.

And these are but a small part of all that goes to make up our Complete From-Blueprint-To-Shipping-Carton service, which includes also design—engineering—dies—tools—stampings—assemblies—finishing and packing for shipment.

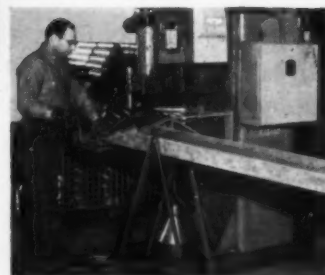
Leading manufacturers everywhere are using New Monarch's Complete Service. Why not put it to the test? Let us quote you on your particular requirements in sheet metal stampings, welded fabrications, etc.



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Projection Welding



Spot Welding



Continuous Seam Welding

longed the life of various submarine parts."

Nagley is materials engineer, Metallic and Ceramic Coatings Section, Coatings and Preservation Branch of the Bureau of Ships, Washington, D. C.

ROYAL METAL PURCHASING APPT.

Elmer P. Behrens has been appointed director of purchases, Royal Metal Mfg. Co., Chicago, a newly-created position, it was announced by Joseph K. Salomon, president. He was formerly director of purchases for Brunswick-Balke-Collender Co.

BARROWS NAMES CARPENTER

DIRECTOR OF RESEARCH

Woodrow W. Carpenter has been appointed director of research for



Barrows Porcelain Enamel Co., Cincinnati. He formerly was with Ingram-Richardson Mfg. Co., Frankfort, Ind., in a supervisory research capacity.

In the new position, Carpenter will investigate the problems encountered in the expanding applications of ceramic finishes to industrial use.

ADMIRAL'S FIBERGLAS DIV.

PLANT NEARING COMPLETION

A 125,000 sq. ft. building near West Chicago, Ill., is nearing completion for Admiral Corp.'s Fiberglas Division, it was announced by John B. Huarisa, executive vice president.

Admiral's new division plans to produce a new type lightweight drop-

pable fuel tank for the Armed Forces. Another newly-developed product will be a freezer chest liner for Admiral's "up-side down" refrigerator-freezer.

SOLAR HEAT FOR HOMES

SEEN IN WIDE USE BY '63

The long-talked-about use of solar energy to heat homes and commercial buildings will become a definite reality within the next decade, ac-

cording to John E. Haines, first vice president of the American Society of Heating and Ventilating Engineers, who said that by 1963 the "heat from the sun will take its place as one of our common fuels."

He told the Society's Golden Gate chapter, in San Francisco, that basic data to aid in the design of solar energy heating systems was emerging from research being conducted by the Society in cooperation with the University of Minnesota.

Robertshaw
MODEL F-1
2 Circuit
Thermostat

For **SWITCHING
CUTTING IN** HEATING
CIRCUITS MOTOR or
BLOWER

HI-HEAT TO
LOW HEAT

HEATER AND
BLOWER

AGITATOR
AND HEATER

The Model F-1 shown here is a single pole, double throw thermostat used to switch circuits from high to low heat where two heating elements are used. For example, an appliance may have one heating element with 4500 watt capacity and a heat holding element with 1000 watt capacity. When the thermostat calls for heat, the 4500 watt element is in action. When the desired temperature is reached, the main contacts are broken, the low heat element is cut in and the 1000 watt element will function until a drop in the temperature causes the thermostat to operate and switch contacts back to the 4500 watt element.

May be used to operate fans in air duct or agitators in tank, etc., in combination with heaters when desired. Write for Catalog.



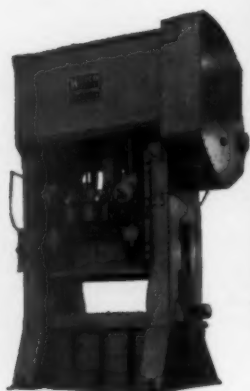
Robertshaw-Fulton

CONTROLS COMPANY

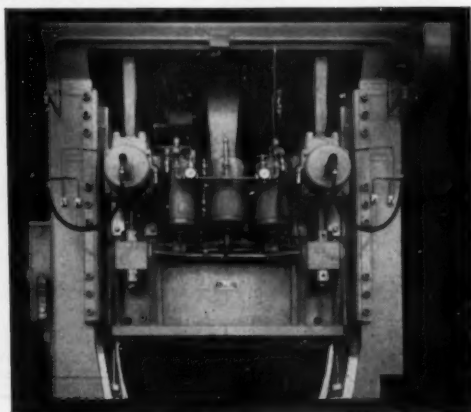
ROBERTSHAW THERMOSTAT DIVISION, YOUNGWOOD, PENNSYLVANIA

NEW Warco®

HYDRO-PNEUMATIC DEVICE ELIMINATES DOUBLE-ACTION BLANKHOLDING PROBLEMS



Front view of Warco Press
with device installed.



Double-Action Press Operators—Here's a simple and compact hydro-pneumatic force adjustment device that acts as safety overload protection for the blankholder and provides a means for adjusting the blankholder pressure independently at all four corners.

This new unit makes it possible to determine the blankholder pressure required at each corner, and to duplicate this setting whenever the job is re-run, without having to repeat the tedious setting required with the rigid blankholder. It also provides a positive safety overload protection in case of double blanks, as the device will detect the double blank and stop the press before damage to the press and dies occur.

This Warco Hydro-Pneumatic Blankholder, of size and capacity required, can be incorporated as an extra feature in Warco Double-Action Presses. For further information, estimates, etc., contact Warco Press Division, Federal Machine and Welder Co., Warren, Ohio.



Rear view of Warco Press with
device installed.

THE FEDERAL MACHINE AND WELDER COMPANY

WARREN, OHIO



WORTHINGTON UPS TRIBBLE

Worthington Corp. has named E. J. Tribble assistant vice president in charge of manufacturing of the Harrison, N.J., Works.

JONES TO DIRECT RESEARCH, DEVELOPMENT AT WHIRLPOOL

J. Paul Jones has been named director of engineering research and development for Whirlpool Corp. For the past seven years he served in a similar capacity with Bendix Home Appliances Division of Avco Corp.

BUCKINGHAM SUCCEEDS HURLEY AS TOP EXECUTIVE AT THOR

Raymond J. Hurley, chairman of Thor Corp. since 1948 and a director since 1927, has resigned both posts. Directors named Henry C. Buckingham, president, to succeed Hurley as chief executive officer. Buckingham continues as president.

WHIRLPOOL NAMES UPTON SENIOR VICE PRESIDENT

The appointment of Frederick S. Upton as senior vice president, Whirlpool Corp., St. Joseph, Mich., was announced by Elisha Gray II, president, who also announced the appointments of Mason Smith as finance vice president and E. C. Cudmore to a newly-created corporate position of controller. The changes are effective September 1.

14 MORE FIRMS JOIN AIR-CONDITIONING INSTITUTE

The Air-Conditioning and Refrigeration Institute, Washington, D.C., has announced 14 new members as follows:

Burnham Corp., Irvington, N.Y.; Gibson Refrigerator Co., Greenville, Mich.; Governair Corp., Oklahoma City; Hotpoint Co., Chicago; International Harvester Co., Chicago; Keco Industries, Inc., Cincinnati; Lonergan Mfg. Co., Albion, Mich.; Quiet-Heat Mfg. Corp., Newark, N.J.; Reynolds Metals Co., Louisville; Tywel Mfg. Corp., Brooklyn; Universal Major Elec. Appliances, Inc., Lima, Ohio; Welbilt Stove Co., Inc., Mas-

JULY • 1954 finish

peth, N.Y.; Soreng Products Corp., Schiller Park, Ill.; and Superior Foundry, Inc., Cleveland, Ohio.

This brings the membership of ARI to 168, and is said to include virtually all of the leading manufacturers of air conditioning and commercial refrigeration equipment.

IRON FIREMAN EXPORT MGR.

Iron Fireman Manufacturing Co., Cleveland, has announced the appointment of Stanley B. Graft to the new post of export manager. Prior to joining Iron Fireman, Graft was for three years with the International Division of Ferro Corporation, Cleveland.

NORGE HEAT PRODUCT MGR.

Appointment of Fred Gombert as Norge Heat product manager has been announced by J. H. Ingersoll, vice president and works manager, Ingersoll Products Division of Borg-Warner Corp., Kalamazoo, Mich. Gombert previously was sales manager of the Hall Neal Furnace Co., Indianapolis.

TEMCO TO RETAIN BOURNER

AS DESIGN CONSULTANT

Temco, Inc., Nashville, has announced that it has retained the services of Howard Bourner as design consultant for gas heating appliances and gas clothes dryers.

Bourner, until recently chief design engineer for Temco, has opened his own office as an industrial designer. He joined Temco in 1946 as a designer, and was instrumental in the development of the modern styling of Temco products. He is a member of the Society of Industrial Designers.

HARGER NAMED MARKET

RESEARCH MGR. FOR AMANA

Appointment of Wayne E. Harger as market research manager of Amana Refrigeration, Inc., Amana, Iowa, has been announced by E. L. Hinchliff, sales manager. Harger will conduct continuing studies of freezer and room air conditioner marketing and merchandising trends.

finish JULY • 1954

Stainless

MOULDINGS SPARK SALES!

INSIDE and OUT

Another in a series showing product appeal achieved thru metal mouldings.

Outside—a thin swirl of STAINLESS, custom made for a leading appliance manufacturer* accents the artistic contour of door front. Below—a bold wrap-around kick plate...both functional and decorative. Inside—standard mouldings add eye appeal and permanent brightness to freezer compartment. Chances are you, too, can spark sales with stainless...custom formed to your requirements by Pyramid. So why not send for your copy of the Pyramid Plan Book today?

*Name on Request.

Pyramid Mouldings Inc.

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SEND FOR YOUR FREE COPY OF "PLAN BOOK OF METAL MOULDINGS"

No one connected with the design or manufacture of any appliance should be without a copy of this book containing hundreds of standard and special mouldings. Send for your free copy today.

Without obligation, please send copy of
"Plan Book of Metal Mouldings." F-7

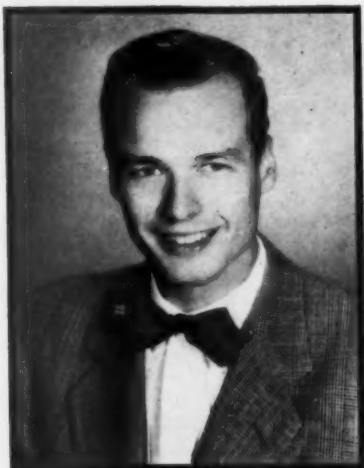
Name _____ Title _____

Firm _____

Address _____

J. H. T. MILLER DIES

J. H. T. Miller Jr., 27, of The Cleveland Electric Illuminating Co., died March 12.



He was very active in Appliance Technical Conference circles, serving at the time of his untimely death as secretary of the Committee on Domestic and Commercial Applications of the American Institute of Electrical Engineers.

WORTHINGTON NAMES MC CUAIG

The air conditioning and refrigeration division of Worthington Corp., Harrison, N.J., has named Donald H. McCuaig manager of application engineering.

FIRST QUARTER ROOM COOLER SHIPMENTS INCREASE 95.3%

Shipments of room air conditioners during the first three months of 1954 increased 95.3% over the same

period of 1953, it was announced by Geo. S. Jones, Jr., managing director of the Air-Conditioning and Refrigeration Institute. The manufacturers' shipments totaled 568,400 units.

CHARLES R. CRANE DIES

Charles R. Crane II, 61, vice president and director of Crane Co., Chicago, died May 8. A grandson of the company's founder, he was associated with the company for 46 years.

Stove men plan for competitive selling

(Continued from Page 59)

"scare" concerning discount houses.

Color starts a hot session

The subject of color formed an important part of the program.

John McCord, of Ferro Corporation, discussed general business problems pertaining to color for appliances and allied metal products. He opined the situation was more favorable to color than it had been in the past by virtue of the support now

being given it by some of the major manufacturers. McCord feels that the influence of shelter magazines has an appreciable effect on the current consideration of color. He advocated it as a mechanism through which you could institute obsolescent merchandising techniques such as the automobile manufacturers now pursue. It would also tend to help those manufacturers who are capable of merchandising complete kitchens.

TAILORED for the APPLIANCE INDUSTRY

SPRINGS and STAMPINGS
STUD CLIPS
SCREW FASTENERS
MOULDING CLIPS
THREADED FORMS
SPECIAL COLD HEADINGS

The CUYAHOGA SPRING Co.
SUBSIDIARY OF THE BARIUM STEEL CORP.
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SNAPSHOTS FROM STOVE MEETING

(More photos to appear in August issue)



McCord pointed to the fact that many top designers and decorators are advocating moderation in the use of color — that is, color treatment and relief rather than for the product as a whole.

As is customary with any relatively new handling technique, it appears that the technical problems are not resolved to everyone's agreement, there being some existing differences of opinion as to the best and most economical method of producing the colors in the manufacturer's plants. Chief differences centered around whether materials prepared in color by the supplier or color manipulated in the manufacturer's plant give the most desirable solution.

Active in this discussion with McCord were A. B. Friedmann, of Chicago Vitreous Corporation, and Dr. R. F. Patrick, of Pemco Corporation.

Leading voice in the discussion of color was that of F. H. Guthrie, president of Newark Stove Co., who spoke in terms of manufacturing cost problems involved in the general subject of color for appliances. The success of the whole program, in his opinion, will be determined by the willingness of the consumer to pay the extra cost alone. Guthrie pointed out that, at present, color is only a temporary advantage that will remain only so long as everyone else does not have color, but which would eventually nullify itself if all manufacturers went to color.

Heated discussion by the manufacturers present followed the general presentation. It was the opinion of your *finish* observer, based on the discussion in this group, that many of the "old timers" in the stove business will resist the introduction of colored ranges in their lines just as long as it can be successfully resisted. It is quite apparent to your *finish* editors that the subject of color introduced many months ago in our editorial pages will be a "hot" one during the months to come.

Inasmuch as a guest editorial in *finish* was forcefully quoted at this session, it seems appropriate to point out that, because we are vitally interested and concerned, it is our plan to present all sides of the color problem from authoritative sources.*

Suppliers exhibit

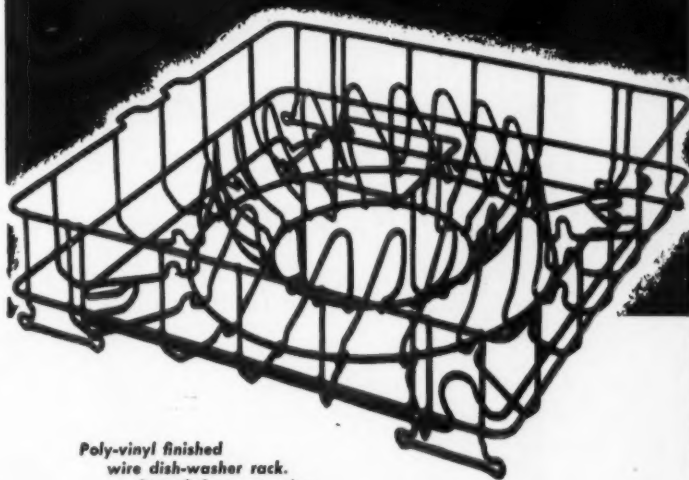
It could be safely said that an overall picture of the exhibit accompanying the annual IAM convention was one of the most effective in the many years *finish* editors have been covering this important industry meeting. There also appeared to be a perceptible awareness on the part of suppliers of a new degree of receptiveness among the leading manufacturers in developments and innovations which might be used to spark new interest in products for the future.

*Readers interested in more information on this subject are urged to read the following articles published recently in *finish*:

1. "Home Appliances in Color," by Charlotte Eaton Conway, January, 1954.
2. "Frigidaire Announces Color for Refrigerators and Ranges," February, 1954.
3. "Home Appliances in Color—or—History Repeats Itself," by Dana Chase, May, 1954.
4. "Color in the Appliance Field," by Charlotte Eaton Conway, June, 1954.

finish JULY • 1954

EVER SEE A Picture of Know-how...



Poly-vinyl finished
wire dish-washer rack.
One of the many wire
products by Peerless.

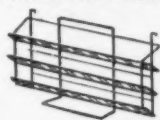
Illustrated above is one of the many reasons why PEERLESS has long been known as one of the quality manufacturers of formed wire products. Intricate forming of low carbon steel, resistance welded at all points of contact, and quality finishing tells the story of craftsmanship. Here is a product of the highest calibre for appliances of quality.

Here, too, is the reason PEERLESS names among its customers many outstanding manufacturers of home appliances. If your requirements are for freezer baskets, refrigerator trays, dish washer racks or any of the hundreds of wire formed products, PEERLESS has the engineering, facilities and years of know-how to transfer your designs from drawing board to finished product . . . from zinc plate to organic and poly-vinyl finishes. And, PEERLESS can do it better, faster, at less cost. Send us your prints for quotations by return mail.

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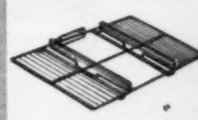
FROZEN JUICE RACKS



FREEZER BASKETS



REFRIGERATOR TRAYS



Appliance technical conference held in Chicago

(Continued from Page 43)

dust bag on the centerline of the machine at the rear.

Since the motor was largely enclosed by the exhaust chamber, treatment of the cooling system was somewhat different from the conventional, stated Bradley. The fan for cooling was of the centrifugal type, but rather than exhaust radially as do most such fans, this one exhausts some-

what to the rear of radially.

The use of die castings throughout the machine permitted shapes and fits of parts that earlier sand casting methods would have made impracticable, Bradley said. Where possible, existing standard parts for such items as wheels, dust bag and brush, etc. were utilized by detailing the die castings to accommodate these parts

with no machining of surfaces or modification of standard parts.

As the design of fan and fan chamber passed through the stages of development into the final form, the motor was being developed to permit the most compact unit that would meet all requirements. The motors are designed to meet four basic conditions: (1) overall size of unit, (2) output performance required by the application, (3) temperature rise requirements as set by UL; and (4) commutation or carbon brush life.

The final motor adopted for production resulted from the building and testing of some 40 combinations of the many variables that make up a motor of the series or universal type. Upon completion of the entire project, it was discovered that the fourth motor combination tested was essentially the same as that finally chosen for the production model. At the stage where it was tested, however, the fan and chamber design had not yet evolved to the final form which did permit the use of the fourth motor combination.

Measurement of vibration in automatic washer testing

J. A. Flynn, of General Electric Co., reported on "Measurement of Vibration in Automatic Washer Testing," a paper prepared in collaboration with J. W. Toma.

Their first consideration was to establish simulated home usage conditions as regards the flooring upon which a machine is likely to operate. The sturdiest flooring selected was a glazed concrete slab, while the other extreme was a floor constructed to the minimum building codes that are prevalent in this country.

Testing sequence is about as follows. The machine is levelled and measuring instruments placed in position. Under controlled conditions of voltage, motor temperature, spring gradients, etc., equivalent unbalance weights are placed in the washer in a series of varying locations and of various magnitudes. Scribes of basket axis travel are taken during rotation, using a pencil attached to the agitator cap. Case amplitudes are measured to indicate moving system

LAUNDRY EQUIPMENT WINDOWS

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• **Price** — complete facilities for both hand and machine production keep Lancaster prices competitive regardless of quantity.

• **Increased Sales Appeal** — Lancaster glass has the sparkle which makes the sale.



The Lancaster glass window shown above meets the rugged requirements of commercial laundry service in the Ace Cabinet Corporation's Model D-14 dryer.

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THE Lancaster Lens co.

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critical speeds, combined floor and case resonances, and similar pertinent indicators.

Suspension design considerations

The principal moving system critical, the case resonance, and the combined resonance of case and floor, all must be considered in suspension design and, therefore, all must be measured in any vibration evaluation, Flynn pointed out. The damping system (boots, friction dampers, etc) limits the amplitude of the moving system as it passes through its critical speeds, and the moving system forces are transmitted to the case and to the floor.

The interpretation of tapes obtained from test runs can be of value in developing a new suspension design or in improving an existing design. For example, Flynn pointed out, "we want the moving system critical speed to be far below the terminal speed and similarly, we want the case resonance to be well above terminal speed.

"Thus, if our data shows a large case amplitude at or near terminal speed we know that we must raise the case resonance as a means of reducing the case amplitude. An obvious way in which that can be done is by stiffening the case or lowering the supported mass," explained Flynn.

Power-factor correction of room air conditioners

H. A. Brysselbout, engineering manager of commercial refrigeration, York Corp, and Geo. S. Jones, Jr., managing director, Air-Conditioning and Refrigeration Institute, prepared a report on "Power-Factor Correction of Room Air Conditioners", with the paper presented by Jones.

It was pointed out that as a result of discussions held among the engineers of the industry, it has been suggested that power factor be related to size. With this in mind, at a recent meeting between utility executives and management representing the room air conditioner industry, a figure of 85% power factor for $\frac{3}{4}$ hp and larger, 80% for $\frac{1}{2}$ hp, and 75% for $\frac{1}{3}$ hp were mentioned as reasonable starting points.

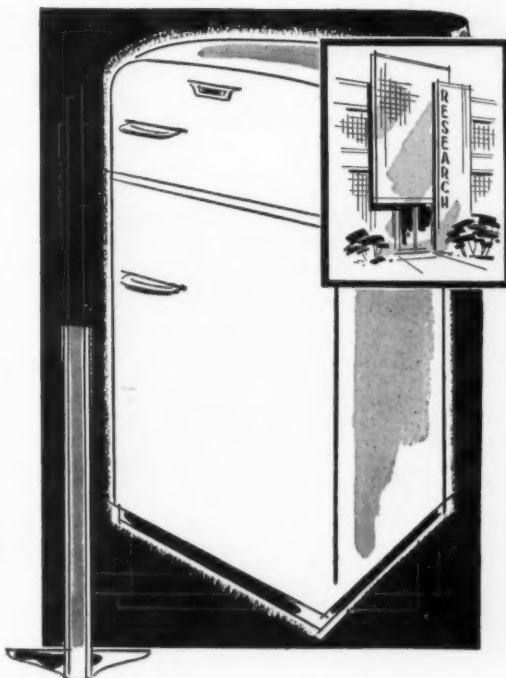
finish JULY • 1954

Jones said that in recommendations to the utility executives at the meeting, it was suggested that the sliding scale of power factors as listed above should be made applicable not before the 1956 models—because much of the preliminary design of the 1955 line of room air conditioners has already been completed and many contracts already placed for components.

Jones also stressed the fact that the

growing use of air conditioning equipment "has high-lighted and emphasized the tragic inadequacy of wiring circuits in the typical homes and other buildings in this country. Improving the power factor, with a consequent lowering of the ampere draw, is some contribution to this matter of inadequate wiring, but it is unrealistic to assume that any power-factor improvement would result in sufficient reduction in ampere draw."

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smaller on
the outside,
bigger on
the inside ...
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FIBERGLAS
to work!



You may be able to give your product a new sales edge by a simple design change, a change that brings to bear the superior thermal insulating value of new and improved Fiberglas* Insulations. And you can have help in doing it. The complete development and testing laboratories of Owens-Corning Fiberglas Corporation are available to help you find ways to improve appliances through better control of heat,

cold and sound. There's a new Owens-Corning booklet, "Sales Opportunities," which will show you some of the many, many improvements that versatile Fiberglas Insulations make possible. For your copy of this worthwhile booklet, call the nearest Fiberglas office, or write direct to: Owens-Corning Fiberglas Corporation, Dept. 109G, Toledo 1, Ohio.



*Fiberglas is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for products made of or with Fibers of glass.

Action program stirs gas appliance manufacturers

(Continued from Page 55)

representing 35 per cent of the gas meters in the country.

At the first general session luncheon on Wednesday, J. R. Doscher, manager of sales presentations for *Life Magazine*, gave a slide talk on conserving and improving America's housing.

He pointed out that the greatest single asset this country has is a 220 billion dollar housing stock, a "natural" resource that should be conserved just as we conserve forests, farm lands and mineral wealth.

He said that our housing is be-

coming "blighted" through lack of proper upkeep and repair and called for support in a national program that would encourage homeowners to keep their homes in good shape.

He called such a program a challenge to free enterprise since it would pump 16 or so billions per year into our economy, increase real estate values and mean a tremendous new market for home appliances.

"Bankplan" of financing

E. J. McGowan, general manager of E. A. Mattison and Associates,

outlined a new plan of financing called "Bankplan." He said that in the present era of vigorous competition in the appliance industry, "Bankplan" is a simple, convenient program that will induce banks to provide wholesale "floor plan" facilities to distributors and dealers of major gas appliance manufacturers.

McGowan said that his firm presents the program to banks on behalf of manufacturers. Among its advantages, he said, are that it permits dealers to increase sales by acquiring and displaying floor stock through local bank financing. It also enables distributors to finance purchases from manufacturers and allows distributors inventory financing for sales to dealers in lieu of "open account" or consignment sales.

Following his explanation of the "Bankplan", McGowan announced that the First National Bank of Chicago would serve as the cornerstone for the plan in the midwest. He then introduced two First National representatives, Clarence Eichenberger, vice president, handling appliance manufacturers' accounts, and Russell Hanson, assistant vice president, handling dealer installment financing.

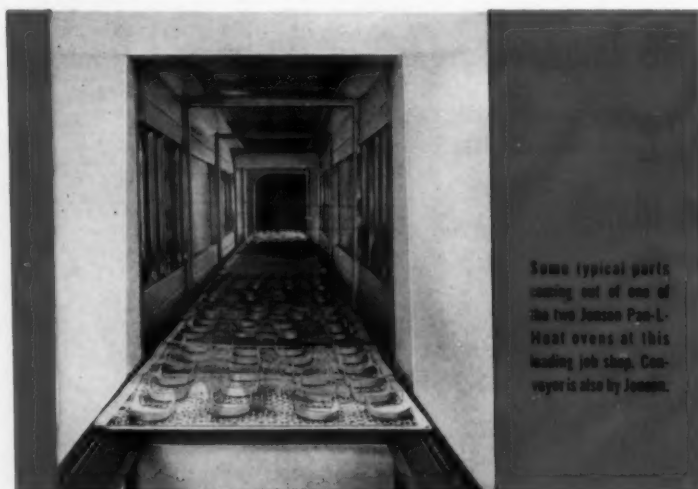
Dolph Jansen Jr., vice president of Fuller & Smith & Ross, Inc., reported to the convention on his survey of the progress of the ten "demonstration" cities in the GAMA Gas Industry Development Program.

J. Theodore Wolfe, chairman of the A.G.A. Gas Industry Development Committee and executive vice president of Consolidated Gas Electric Light and Power Co., of Baltimore, reported on utility participation in the program.

At the second general session, H. Leigh Whitelaw, managing director of GAMA, outlined the association's activities in countering anti-gas legislation and introduced the resolution which put the convention on record against the Hunt Bill.

Harold Massey, assistant managing director of GAMA, outlined some of the services and functions of the association.

Gerry Swinehart, president of Carl Byoir & Associates, GAMA public relations consultants, reviewed the



"'BUTTERFLY DISTRIBUTION' GIVES US THE HEAT UNIFORMITY WE NEED"

—Says Hartford Processing Job Shop

"As a job shop handling many varied types and shapes of work, we rely on heat uniformity in our processing ovens," says Fred C. Hillier, Hartford Industrial Finishing Co., Hartford, Conn. "The 'butterfly' heat distribution of Jensen Pan-L-Heat is giving us greater uniformity and energy control than we ever expected. The reflectors aim heat

where it's needed—forced convection maintains constant hot air recirculation."

Jensen Pan-L-Heat is an electric-type oven for baking, drying, pre-heating, and curing. Its basic components lend themselves to many shapes—ideal for meeting changing requirements through the years.

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past year's developments in the association's program to strengthen the market for gas appliances. Uppermost in the program, he said, has been a successful effort to provide gas companies with material for local promotion of appliance sales.

Meritorious awards

At the president's dinner on the final night of the meeting, meritorious awards for outstanding service to the industry were given to the following men:

Thomas D. Bromley, vice president, gas heating division, Peerless Mfg. Corp., Inc.; Harold C. Day, manager of the boiler and radiator department, American Radiator & Standard Sanitary Corp.; James F. Donnelly, vice president in charge of sales, Servel, Inc.; and D. E. DuPerow, vice president, Lincoln Brass Works, Inc.

Awards also went to George M. Fraser, Surface Combustion Corp.; George B. Horne, president of Watts Regulator Co.; L. N. Hunter, The National Radiator Co.; R. M. Johnson, Payne Furnace Division, Affiliated Gas Equipment, Inc.; T. H. Landgraf, chief engineer of Autogas Co.; S. J. Levine, general manager of the home heating and cooking department, General Electric Co.

Arnold A. Muenzer, sales manager of the Columbia Burner Co.; W. M. Myler Jr., chief engineer of Janitrol Engineering Department, Surface Combustion Corp.; E. A. Norman Jr., president of Norman Products Co.; F. C. Schaefer, sales manager of the American Gas Furnace Co.; W. T. Trueblood Jr., advertising and promotion director of Magic Chef, Inc., and David R. Webster, president of Reznor Manufacturing Co., were the other recipients.

METAL FINISHERS SEMINAR

IN NEW YORK CITY, JULY 13

The National Federation of Metal Finishers will hold its second Management Seminar at the Statler Hotel, New York City, July 13, in conjunction with the annual meeting of the American Electroplaters Society.

The program will include talks on "Management of a Job Shop", "The

Future of the Plating Industry", "Job Evaluation for the Finishing Industry", and a discussion on "Labor Practices."

USAIRCO ELECTS INGHAM V. P.

George W. Ingham has been elected vice president of production, United

States Air Conditioning Corp., Minneapolis, it was announced by W. J. Peoples, president.

Ingham joined the firm in 1950 as assistant to the works manager. He previously was general superintendent of air conditioning at Worthington Corp., Holyoke, Mass.

SEE RECORD HOUSEWARES, HOME APPLIANCE SHOW

Buyers attending the National Housewares and Home Appliance Exhibit, in Atlantic City, will see a record-breaking number of exhibitors and products, according to A. W. Buddenberg, executive secretary, National Housewares Mfrs. Assn.

A total of 590 manufacturers will display their lines of merchandise to an estimated 7,000 buyers.

The exhibit will open Monday, July 12, and will continue through Friday, July 16.



"The Man in the Barrel" recommends . . .

Stuart's

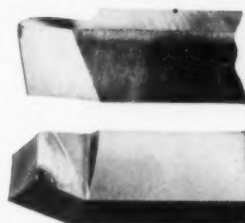
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balanced for your particular operations

• What is your operation? Gear shaping, high speed automatics? No matter . . . because Stuart Oil Company has a balanced cutting oil for you with just the right amount of lubricity, temperature control and chemical activity to provide the optimum in finish, production and tool life.

Stuart's Balanced Cutting Oils are made under laboratory control. You are assured of a uniform product that will produce the very best results obtainable under the conditions you will subject it to.

Perhaps you are blending your own cutting oils now . . . or using other types. Let a Stuart Representative, "the Man in the Barrel", explain and demonstrate a balanced Stuart Cutting Oil. Fill in the coupon below today.



The cutting tool at top shows abnormal front clearance caused by excessive chemical activity of cutting fluid. The lower cutting tool shows cratering from insufficient chemical activity of cutting fluid.

More than a "Coolant" is Needed

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2747 S. Troy St., Chicago 23, Illinois

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CLIP TO YOUR COMPANY LETTERHEAD AND MAIL TO

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2747 S. Troy Street, Chicago 23, Ill.
Have "the Man in the Barrel" call.
Send a Stuart's Cutting and Grinding Fluid Selector Folder.

NAME.....

TITLE.....

Porcelain enamellers discuss markets

→ from Page 53

Ferro Corp., reported on the subject of "Widening Horizons for Porcelain Enamel in Home Products."

He stated that "the clothes dryer is one of the hottest items to come down the 'appliance pike' post-war", adding that porcelain enamel's heat resistance, rust and corrosion resistance, alkali and acid resistance, ease of cleaning, abrasion and wear resistance, and non-fading characteristics make it an ideal finish for clothes dryers.

Washers, space heaters, gas and electric ranges all will continue to use porcelain enamel, stated Hutt, who told his audience to watch for a possible swing to counter top units, built-in ovens and broilers, as well as refrigerator exteriors.

Other products described as being excellent markets for porcelain enamel include incinerators, dishwashers, room conditioners, dehumidifiers,

Key industry men at one session included: (seated) F. C. Woleslagle, U.S. Steel; Edw. Mackasek, PEI; W. A. Barrows, Barrows Porcelain; (standing) W. H. Lowry, Vitreous Steel; C. P. Lohman, Pemco; and Glenn Hutt, Ferro.



furnaces, roofing shingles, wall coverings, and a complete porcelain enamel house.

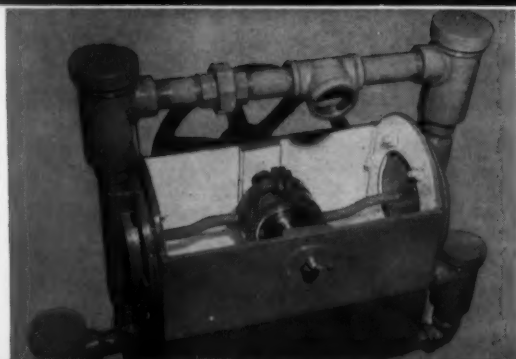
The building field

Rutcher Skagerberg, director of operations engineering branch, Public Housing Administration, told of the 550,000 government-subsidized public housing units in existence, with some

50,000 additional now under construction. Millions of dollars worth of building materials are used in the construction and maintenance of these units, and porcelain enameled products could very well appear in these units to a greater extent than they have, he stated.

In addition to plumbing fixtures, porcelain enameled pipe, wainscoting,

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and other wall coverings, hoods for cooking ranges, counter tops, hot water heaters and many other types of products and equipment were mentioned as possibilities by Skagerberg.

A seven-year forecast

F. C. Woleslagle, of U. S. Steel Corp., as chairman of the PEI Commercial Research Committee, presented a "Seven-Year Forecast for Porcelain Enamel."

"For those who like astronomical calculations," he stated, "it looks like the production of porcelain enamel will accumulate to over \$2¾ billion during the next seven years." He outlined the expenditure for 1953 in the huge construction market, and asked his audience to "make your own mental notes of the terrific possibilities for porcelain enamel in this market".

Architectural porcelain

At the session of Architectural Porcelain Enamel, attention was devoted to two manuals in process — one on architectural porcelain, and the other a specialized report on the design requirement for curtain walls.

This field was described as the industry's "largest potential market."

Speakers for this session included W. A. Barrows, Barrows Porcelain Enamel Co.; M. van der Kloet, Ervite Corp.; R. A. Chapman, Minnesota Mining & Mfg. Co.; R. A. Niles, Standard Oil Co. (Indiana); and D. H. Malcom, Armco Steel Corp. Presiding was J. E. Bourland, of Textlite, Inc.

Sign division

The Sign Division approved plans for exhibiting at the 1955 exhibit of the National Electric Sign Association to be held in Los Angeles.

Another important Institute project discussed was the semi-annual wage survey conducted under the auspices of the Sign Division. While primarily for the benefit of sign manufacturers, all enameling companies are given the opportunity to participate. The information obtained through the survey is compiled by the Institute office and made available only to participating companies.

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... Better results ... lower costs for your spray washing operations

Whatever your spray washing operations, you are guaranteed better results, lower costs when you call in the Detrex field technician.

The soil being removed, the type of spray washing equipment you are using and all other influencing factors are first thoroughly analyzed by the Detrex technician. This survey is made without disrupting your operations in any manner. Then, after

careful study, he will recommend a cleaner tailored to your needs along with specific data on the improved performance you can expect from it.

But that's not all of the story . . . Detrex service continues, on a regular basis, for as long as you use the operation! The Detrex technician visits your plant at reasonable intervals to make certain that top efficiency is maintained and that you are kept abreast of constantly improving techniques; he even assists in the training of personnel if you desire.

It all adds up to what we call "Service with a Saving" . . . one of the important values on which our business has been built.

Investigate the benefits of Detrex spray washer cleaners for your plant. An easy way to do it is to use the coupon below . . . how about doing it now.



Offer These Advantages

- 1 Will not foam.
- 2 Leave no lime scales or deposits on coils, heat lines, etc.
- 3 Will emulsify inorganics—soaponify organics.
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Please send us your alkaline and emulsion cleaning file ☐. We would also like a Detrex technician to make recommendations on our cleaning operations ☐.

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PROGRAM FOR PEI SHOP PRACTICE FORUM ANNOUNCED

A program of real interest and providing usable information for practical enamellers is being developed for the 16th annual Shop Practice Forum sponsored by the Porcelain Enamel Institute, according to John C. Oliver, PEI secretary.

This year's session will be held on September 8, 9 and 10 at Urbana, Illinois, and the meeting is expected to draw more than 300 representatives from enameling plants all over

the country. Acting as host to this year's meeting is the Department of Ceramic Engineering, University of Illinois. Dr. A. I. Andrews, head of the department, and Dr. A. L. Freidberg are handling facility arrangements.

The opening afternoon session on September 8 will feature a series of concise five-minute "Industry Reports". These factual presentations will cover such varied topics as "Or-

ganic Dyes As Spraying Aids", "Water In Furnace Atmosphere", and "Infra-Red Drying".

Thursday morning will feature processing techniques with practical data on spraying, dipping and developments in electrostatic spraying. A high point of this morning session will be a paper entitled, "Guideposts in the Enameling of Hot Water Tanks". This subject will deal with one of the most rapidly growing segments of the enameling industry.

An entire afternoon will be devoted to all aspects of the subject of color in the porcelain enameling industry. This topic with all of its ramifications will be discussed by experts from both within and outside the industry.

Friday morning's session will be devoted to two major topics — "Practical Tests for the Enameling Industry" and "One Coat Application of White Porcelain Enamel Direct Onto Steel". Both of these subjects will be discussed by leading industry representatives.

<p>Material: Clay Slip.</p> <p>Problem: Short pump life caused by abrasion.</p> <p>Solution: Moyno handles slip of 1.8 specific gravity—and gets about 1 year service on rotor and stator. Customers well pleased.</p>	<p>Material: Paint Primer and Surfacers.</p> <p>Problem: Finding pump that would offer reasonable service life.</p> <p>Solution: For past 2 years, Moynos have been pumping these abrasive materials at 40 p.s.i.—and maintenance costs are minimum.</p>
<p>Material: Special Navy Paint.</p> <p>Problem: Low volume of gear-type pump; necessity for pre-heating paint before pumping.</p> <p>Solution: Moyno cuts tank-car filling time from 10 hours to 2½ hours. No maintenance costs for past two years!</p>	<p>Material: Baking Enamel and Primer.</p> <p>Problem: Recirculating abrasive material in closed system at 90 p.s.i.</p> <p>Solution: Moyno pumps used successfully, with minimum repairs, for the past 4 years and are kept in operation 24 hours per day.</p>

Four Industrial Finishing Problems Solved With The MOYNO PUMP!

Features of the MOYNO that may solve YOUR pumping problem

Positive Displacement—Moynos pull up to 29" vacuum while discharging under pressure. Big Moynos deliver up to 250 g.p.m. at pressures to 600 p.s.i.

Gentle—no churning; won't break up semi-solids; won't aerate liquids.

Reversible—pumps with equal efficiency in either direction.



Versatile—handles liquids, slurries, pastes—even potato salad! Rotor and stator available in stainless steel, other alloys, or plastics to meet wide variety of applications.

Trouble-Free—self priming; won't cavitate or vapor-lock. Just one moving part—no valves to stick, no pistons to gum up. Built for tough service. Easy to maintain.

Looking for a pump with a fast-growing reputation for solving tough problems? Take a look at the simple, versatile Moyno!

Briefly described above are a few of the many successful case histories proving how Moynos handle jobs where other pumps failed. Why is the Moyno a "problem-solving" pump? For one thing, because it differs completely from conventional pumps—rotary, centrifugal or piston. Just one rugged moving part—a rotor turning within a stator—does the job.

If you have a pumping problem caused by abrasive or corrosive materials—watery, viscous or even semi-solid—find out if the Moyno can help you! Mail the coupon.

Robbins & Myers, Inc.
Pump Division, Springfield 99, Ohio

Gentlemen: Please mail free copy of Bulletin 30-B containing details on construction and operation of Moyno Pumps:

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ROBBINS & MYERS • Inc.

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ELECTROPLATERS TO MEET IN NEW YORK, JULY 12-15

Plans are being completed for the 41st annual convention of the American Electroplaters Society to be held in New York City, July 12-15.

According to George Schore, the convention chairman, of the host New York Branch of the Society, this year's convention headquarters will be at the Hotel Statler. Highlights will include several educational sessions, branch exhibits, election of national officers, awards for "best" papers in the fields of plating and metal finishing, the traditional banquet, boat trip to Bear Mountain, entertainment, and dancing featuring a name band.

In addition, there will be a business session of delegates to the society. The executive board, editorial and research committees will also convene that week.

Dr. George P. Swift of Boston, Massachusetts, former MIT professor, is national president of the Society.

NEWS ABOUT SUPPLIERS



OLIVER FULLER



E. E. MARBAKER



EDWARD DETGEN



PAUL CARNAHAN

FIBERGLAS UPS DETGEN

Edward J. Detgen has been elected a vice president of Owens-Corning Fiberglas Corp., it was announced by Harold Boeschstein, president.

Detgen had been serving as general sales manager of the company's general products division. He will continue to headquarter in Toledo, Ohio.

PERMACEL NAMES DE NOIA

Appointment of John S. De Noia as assistant industrial sales manager of Permacel Tape Corp., New Brunswick, N.J., was announced by John H. Scherer, vice president-sales. De Noia has been associated with Permacel in a sales capacity since 1940. He served as metropolitan division manager for the New York City area, and as midwest division

manager, with headquarters in Chicago, before receiving his new appointment.

FULLER HEADS P&H DIVISION

Oliver Fuller has been named to head sales of Harnischfeger Corp.'s new P&H electrical sales division. Products to be handled include motors, motor generator sets, bare generators, magnetic and hydraulic brakes, controllers, limit switches, etc.

DR. E. E. MARBAKER DIES

Dr. Edward E. Marbaker, 65, nationally known research chemist at Mellon Institute, Pittsburgh, died June 2.

At the time of his death, he was a fellow on the Multiple Fellowship on Ceramic Chemicals sustained at the Mellon Institute by The O. Hommel Co. During the past 14 years he

devoted his efforts mainly to research on porcelain enamels.

Dr. Marbaker joined the Institute as an industrial fellow in 1921, becoming a senior fellow in 1923. In 1929, he left the Institute for other work, but returned in 1935. From 1935 to 1945 he did investigational work for the War Production Board along with regular research work. He was editor of Mellon Institute News, a weekly newspaper, since 1941, and edited the Journal of the American Ceramic Society in 1948 and 1949.

CARNAHAN NAMED PRESIDENT OF GREAT LAKES STEEL

Paul Carnahan, senior vice president, has been elected president of Great Lakes Steel Corp., Detroit, it was announced by Ernest T. Weir, chairman of the parent National Steel Corp.

DREIER TO HART V. P. POST

John F. Dreier, sales manager, The Hart Mfg. Co., Hartford, Conn., has been elected vice president — sales, it was announced by George E. Hart, president.

ROBINSON & EVANS TO REPRESENT CONFIGURED TUBE

Fred D. Fisher, president, Configured Tube Products Co., Bellwood, Ill., has announced that Robinson & Evans, of Toledo, will represent the

At Basic Materials Show — in Chicago — a new material discussed in the booths of both Carborundum and Bettinger was a "fibrous aluminum silicate" — a fairly inexpensive refractory addition that can be substituted for chromium oxide which is in rather short supply. The new material is a by-product of Carborundum in the manufacture of heat-resistant ceramic cloth. Companies now using the material as an additive in high temperature ceramic coating work include both Bettinger and Hotpoint.



company in the sale of burners and related equipment to the gas appliance industry in the territory east of the Rocky Mountains. Frank D. Maclean, of Los Angeles, is west coast representative.

LITHIUM CORP. EXPANSION

Herbert W. Rogers, president, Lithium Corp. of America, Minneapolis, recently announced that the company has contracted for a \$7,000,000 loan to erect a new plant at Bessemer City, N.C., to expand production of lithium products. Financed

by private sources, the loan is to be amortized over the next five years.

CHICAGO VIT NAME CHANGED

Chicago Vitreous Enamel Product Co. has announced that it has modernized and shortened the firm's name to Chicago Vitreous Corporation.

ARMCO "RELIANCE AWARDS" TO HIGH SCHOOL SENIORS

Nine high school seniors from the Middletown, Ohio, area were the first

recipients of the newly-created W. W. Sebard Self-Reliance Awards. Sebard, president of Armco Steel Corp., established the cash awards, to honor the most self-reliant students of the community who had made the best possible use of their time during high school days. The nine awards totaled \$1550.

NICKELOID PHILADELPHIA OFFICE

American Nickeloid Co., Peru, Ill., has opened a sales office in Philadelphia. Carl C. Struever, general manager, said that Marc F. Hermann, the firm's former representative in Detroit, is in charge of the new office. The Detroit office has been closed.

U. S. STEEL UPS FOSTER

George R. Foster has been named manager of the stainless steel division, general sales department, United States Steel Supply Division, U.S. Steel Corp., it was announced by Hal P. Kibbey, asst. vice president—sales.

PEMCO ADDS TO RESEARCH STAFF

Edwin E. Childs, Jr. has joined the research department of Pemco Corp., Baltimore, as senior research engineer, it was announced by Herbert Turk, executive vice president, who added that Childs' present assignment is to assist in the development of new and improved inorganic colors and glaze frits.

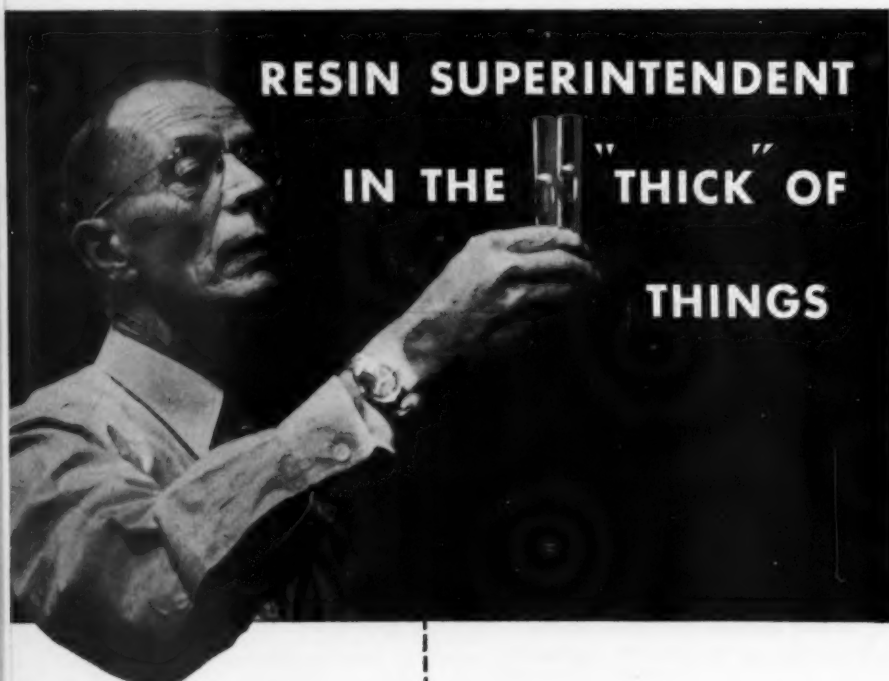
ENTHONE LICENSES MACDERMID

Enthone, Inc., New Haven, Conn., has granted a license to MacDermid, Inc., Waterbury, Conn., for the sale of compounds for the non-electrolytic stripping of nickel and other metals, a process covered by a patent assigned to Enthone.

FERRO BUYS TWO FIRMS

Ferro Corporation recently purchased Louthan Mfg. Co., East Liverpool, Ohio, from Harbison-Walker Refractories Co. Harry T. Marks, administrative vice president of Ferro, will be president of the Louthan Division, and Charles W. Gerster will be executive vice pres.

Ferro also acquired the patent rights and related assets of Peterson Kiln Co., Los Angeles.



Scientific testing by C. A. Holkesvig, Superintendent of Ferbert-Schorndorfer's resin department leaves nothing to guesswork in the manufacture of resins for paints and finishes.

"Hoke", as he is known in chemical circles, is shown above testing the viscosity of a new batch of resin. Such meticulous care and "down-the-line-control" is largely responsible for the recognized quality of Ferbert-Schorndorfer products.

Hoke — a 40-year pioneer in the paint business — has witnessed

amazing strides in the production and quality of synthetic resins. After 19 years with F-S, he is justifiably proud of his department's fine production record and of the 30 quality resins they manufacture.

Each new batch of resin "run off" represents the painstaking effort of men who refuse to let production become a routine matter, but instead prefer to be in the thick of things . . . an attitude reflected in the quality of F-S finishes.

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